

**ENVIRONMENTAL ASSESSMENT  
OF THE  
PRATHER WATER LINE IMPROVEMENT PROJECT**

**OTERO COUNTY, NEW MEXICO**

**HOLLOMAN AIR FORCE BASE**



*United States Air Force  
Air Combat Command  
49<sup>th</sup> Fighter Wing  
49<sup>th</sup> Civil Engineer Squadron  
Office of Asset Optimization*

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**FINDING OF NO SIGNIFICANT IMPACT FOR  
PRATHER WATERLINE IMPROVEMENT PROJECT  
AT HOLLOMAN AIR FORCE BASE  
OTERO COUNTY, NEW MEXICO**

**This Environmental Assessment (EA)** has been developed in accordance with the requirements of the National Environmental Policy Act of 1969, the Council on Environmental Quality regulations, and implementing regulations set forth in 32 CFR §989 (Environmental Impact Analysis Process) as amended, to analyze a United States Air Force (USAF) proposal to improve the Holloman Air Force Base (HAFB) Prather water pipeline near Alamogordo, New Mexico.

**Purpose and Need:** HAFB and the City of Alamogordo (CoA) jointly hold water rights to Bonito Lake. The purpose of the Prather waterline is to connect the CoA water system to the HAFB water system and deliver HAFB's share of the lake water rights. The Prather line consists of approximately 18,500 linear feet of fifty-year old 16 inch steel reinforced concrete cylinder pipe, buried south along Hamilton Road from U.S. Highway 54/70 to HAFB's Boles Wells Water System Annex (BWWSA). It is the only interconnection between the CoA and HAFB water systems. It is well beyond its original life expectancy, operates at reduced pressure which limits delivery volume, and breaks frequently causing lake water delivery failure. The Prather pipeline is critical infrastructure.

**Proposed Action:** The proposed action is to replace the existing pipeline, all valves and fittings, and tie-in to existing connections using one of three possible alignment alternatives.

**Description of Alternatives**

**Alternative A** is the preferred alternative. This proposed pipeline would originate at the structure which houses the CoA-Prather interconnect, crosses under the Union Pacific Railroad (UPRR), and extends south-southwest in a narrow strip of land bounded by the UPRR to the east and U.S. Highway 54 to the west, to an existing pipeline in the BWWSA. Alternative A would be in New Mexico Department of Transportation (NMDOT) and UPRR rights-of-way, and measures 6.1 km (3.78 miles), with a proposed pipeline working area 20 feet wide, in a 30 meter (100 feet) wide area of potential affect encompassing 12.91 hectares (31.9 acres).

**Alternative B** originates at the structure which houses the CoA-Prather interconnect and leads southwest, crosses under the UPRR and the US 54/70 Relief Route, then parallels the westbound lanes of U.S. Highway 70. It would terminate at an existing pipeline a short distance east of the main entrance to HAFB. Alternative B is within the US 70 highway right-of-way, and measures 10 km (6.2 miles) long, with a proposed pipeline working area 20 feet wide, in a 30 meter (100 feet) wide environmental survey area of 24.4 hectares (60.3 acres).

**Alternative C** originates at the structure which houses the CoA-Prather interconnection, passes west beneath the UPRR and the US 54/70 Relief Route, then leads west, parallel to the out-of-service Holloman AFB Railroad Spur, on the south side of the railroad bed. This route measures 9.6 km (5.95 miles) long with a proposed pipeline working area 20 feet wide in an environmentally surveyed area 30 meters (100 feet) wide, totaling 28.8 hectares (71.13 acres).

**Scope of the Analysis:** The range of resources addressed includes those normally found in an EA: soil, water, air, biological and cultural resources, land use, aesthetic resources, solid and hazardous waste, socioeconomics, and environmental justice. Based on the types of activities involved and the issues identified through internal discussion and public input, the analysis focused on the water resources, including surface water and groundwater; biological resources, including sensitive plant and wildlife species, terrestrial communities, wetlands and freshwater aquatic communities; archaeological and historic properties (cultural resources) that might be affected; and public concerns about disruption of driveways, access, and utility services.

A field survey was conducted by contract archeologists and a biologist on June 10 through June 12, 2008, to research the areas and resources present. Previously drafted environmental documents relevant to the project and area were also used as references for this assessment.

Plans, standards and practices required by local, state, or federal law or USAF regulation are to be observed to avoid or minimize impacts to the resources. This includes Best Management Practices for resource protection commonly included in construction contracts at HAFB.

**Summary of Findings:** This analysis finds that as a result of the proposed replacement of the Prather pipeline in Alternative A, B or C:

- There would be no significant impact to environmental justice, air quality, noise, safety, hazardous materials or waste management, soils, infrastructure, visual resources, and the social or economic conditions of HAFB, the CoA or vicinity residents.
- There would be no significant impact to water, biological or cultural resources.
- There would be minor inconvenience but no long term, and no significant, impact to residents and businesses adjacent to the proposed pipeline routes.

**Finding of No Significant Impact:** Based on information and analysis presented in the EA and review of public and agency comments submitted, I conclude that implementation of any of the three Proposed Prather Alternatives would not constitute an action that significantly affects the quality of human health and the environment due to the findings listed above and expanded upon in the EA. Accordingly, a finding of no significant impact is made for the Prather waterline improvement project, and under the National Environmental Policy Act an environmental impact statement is therefore not necessary.

  
JEFFREY L. HARRIGIAN  
Colonel, USAF  
Commander, 49th Fighter Wing

2 Apr 09  
Date



## **EXECUTIVE SUMMARY**

The overall mission of the United States Air Force (USAF) and Holloman Air Force Base (HAFB) is to provide combat ready resources to fulfill the directives of the President and Secretary of Defense. This requires well trained and maintained forces and equipment and that requires infrastructure to support the training and maintenance. In this specific case, a water pipeline must be replaced to assure continuity of adequate water supply for the personnel and processes at HAFB.

This Environmental Assessment (EA) addresses a proposal by the USAF for an infrastructure project to improve or replace the Prather Water Line that serves HAFB in Alamogordo, New Mexico. This EA is prepared in accordance with the National Environmental Policy Act, 1969 (NEPA, 42 United States Code [USC] 4321-4347) and subsequent regulations.

### **BACKGROUND**

The existing Prather Waterline is approximately three and a half miles in length, running north-south between U.S. Highway 54/70 and HAFB's Boles Wells Water System Annex (BWWSA) south of the City of Alamogordo (CoA), New Mexico. For three miles the pipeline is beside or under Hamilton Road, two miles are in the CoA through the municipal golf course and suburban-density housing development. The next mile south is maintained by Otero County and passes through a semi-rural residential area that has been developed into three to five acre lots. The southern half mile of the pipeline is in the BWWSA on USAF property.

The BWWSA is a combination of fee simple land and public land obtained for USAF water development purposes in the 1950s to help provide a continuous source of potable water for HAFB. Also in the 1950s, HAFB acquired an interest in the water rights to Bonito Lake in the mountains northwest of Ruidoso, New Mexico. The CoA and HAFB have maintained the pipeline from that lake, and made beneficial use of the water, thus preserving the water rights under New Mexico law. The lake water is processed for human use at the City water plant near La Luz, NM, and transported to the Prather pipeline through the city system. The Prather Waterline is the only connection between CoA and the HAFB water systems. It is critical infrastructure. The current Prather Waterline was built in the 1950s. It is well beyond its original life expectancy, and although it is operated at a lower than normal pressures because of its aged condition, it breaks frequently losing precious water and hindering mission readiness.

### **PROPOSED ACTION**

The USAF proposes to repair or replace the Prather Water Pipeline to ensure continued Bonito Lake water supply availability. This action would involve excavating a trench about five feet deep the length of the pipeline, laying in new pipe and making connections, testing, flushing, then backfilling and compacting the trench to match surface contours. Typical pipeline work involves a 20 to 30 foot wide area of heavy surface disturbance. This provides room to excavate the trench while piling the removed fill dirt to one side and assembling the pipe on the other side.

## ALTERNATIVES

**Alternatives Not Carried Forward:** Seven alternatives were originally discussed. Four were not carried forward for in depth analysis. (1) In-place bursting and slip lining the existing pipeline was found not feasible due to mineralization and workability limits of the steel-lined cable-wrapped concrete pipe currently in place. Placing a new pipeline along: (2) the Old El Paso Highway from the BWWSA to CoA facilities on Panorama Drive, or (3) along the La Luz Gate Road from the Bonito Pipeline at US 54/70 to base; would be far more expensive than practical. (4) Replacing the existing pipeline in the Hamilton Road alignment was the original plan, but during the public meeting and subsequent meetings with the City Manager and utility personnel it became readily apparent that so many water, sewer, electrical and communications lines had been laid across and beside the existing Prather pipeline that reconstruction in Hamilton road would be a very complicated process. Thus, the analysis concentrated on three viable alternatives and “No Action”.

**No Action Alternative:** No action would result in the continued loss of water through breaks in the old Prather pipe line, a limited supply due to the low operating pressure required to keep the old line from bursting frequently and continued cost to repair this critical infrastructure. The No Action Alternative is not a viable alternative.

**Alternative A** is the Preferred Alternative. This proposed pipeline would originate at the structure which houses the CoA-Prather interconnect, crosses under the Union Pacific Railroad (UPRR), and extends south-southwest in a narrow strip of land bounded by the UPRR to the east and U.S. Highway 54 to the west, to an existing pipeline in the BWWSA. Alternative A would be in New Mexico Department of Transportation (NMDOT) and UPRR rights-of-way, and measures 6.1 km (3.78 miles), with a proposed pipeline working area 20 feet wide, in a 30 meter (100 ft) wide area of potential affect encompassing 12.91 hectares (31.9 acres).

**Alternative B** originates at the structure which houses the CoA-Prather interconnect and leads southwest, crosses under the UPRR and the US 54/70 Relief Route, then parallels the westbound lanes of U.S. Highway 70. It would terminate at an existing pipeline a short distance east of the main entrance to HAFB. Alternative B is within the US 70 highway right-of-way, and measures 10 km (6.2 miles) long, with a proposed pipeline working area 20 feet wide, in a 30 meter (100 ft) wide environmental survey area of 24.4 hectares (60.3 acres).

**Alternative C** originates at the structure which houses the CoA-Prather interconnection, passes west beneath the UPRR and the US 54/70 Relief Route, then leads west, parallel to the out-of-service HAFB Railroad Spur, on the south side of the railroad bed. This route measures 9.6 km (5.95 miles) long with a proposed pipeline working area 20 feet wide in an environmentally surveyed area 30 meters (100 ft) wide, totaling 28.8 hectares (71.13 acres).

**Scope of the Analysis:** The range of resources addressed includes those normally found in an EA: soil, water, air, biological and cultural resources, land use, aesthetic resources, solid and hazardous waste, socioeconomics, and environmental justice. Based on the types of activities involved and the issues identified through internal discussion and public input, the analysis focused on the water resources, including surface water and groundwater; biological resources, including sensitive plant and wildlife species, terrestrial communities, wetlands and freshwater aquatic communities;



archaeological and historic properties (cultural resources) that might be affected; and, public concerns about disruption of driveways, access, and utility services.

A field survey was conducted by contract archeologists and a biologist on June 10 through June 12, 2008, to research the areas and resources present. Previously drafted environmental documents relevant to the project and area were also used as references for this assessment.

Plans, standards and practices required by local, state, or federal law or USAF regulation are to be observed to avoid or minimize impacts to the resources. This includes Best Management Practices for resource protection commonly included in construction contracts at HAFB.

## **IMPACTS**

This analysis finds that as a result of the proposed replacement of the Prather pipeline in Alternative A, Alternative B, or Alternative C:

- There would be no significant impact to environmental justice, air quality, noise, safety, hazardous materials or waste management, soils, infrastructure, visual resources, and the social or economic conditions of HAFB, the CoA or vicinity residents.
- There would be no significant adverse impact to water, biological or cultural resources. The conservation of water resources resulting from the new pipe line would be a positive impact.
- There would be minor inconvenience, but no long term and no significant impact, to residents and businesses adjacent to the proposed pipeline routes.
- Cumulative impacts would be minimal, as each of the alternatives addressed in this EA is set within an existing public corridor. They are parallel to existing highways, utility lines and/or railroads. Past construction in each area has created the existing conditions. The addition of a buried pipeline to any of the existing transportation corridors addressed in Alternatives A, B, or C would be an insignificant change, as the use of existing corridors is encouraged by current land use planning in the region.

## **RECOMMENDATION**

Based on information and analysis presented in the EA and the public and agency comments submitted, it is reasonable to conclude that implementation of any of the three proposed Prather alternatives would not constitute an action that significantly impacts the quality of human health and the environment. Accordingly, a finding of no significant impact is recommended for the Prather pipe line replacement project and no further analysis is required. An environmental impact statement is not required under terms of the National Environmental Policy Act.

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## TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION.....</b>	<b>1-1</b>
1.1	BACKGROUND .....	1-1
1.3.1	Scoping.....	1-4
1.3.2	Environmental Impact Analysis .....	1-4
1.4	REGULATORY COMPLIANCE .....	1-5
<b>2.0</b>	<b>PROPOSED ACTION AND ALTERNATIVES .....</b>	<b>2-1</b>
2.1	PROPOSED ACTION .....	2-1
2.1.2	The Area of Potential Effect.....	2-2
2.2	PREFERRED ALTERNATIVE: U. S. HIGHWAY 54 .....	2-2
2.2.1	Construction Activity.....	2-2
2.2.2	Actions to Reduce Potential for Environmental Impacts.....	2-3
2.3	ALTERNATIVE B: U.S. HIGHWAY 70 .....	2-3
2.3.1	Construction Activity.....	2-4
2.3.2	Actions to Reduce Potential for Environmental Impacts.....	2-4
2.4	ALTERNATIVE C: HAFB RAILROAD SPUR.....	2-4
2.4.1	Construction Activity.....	2-5
2.4.2	Actions to Reduce Potential for Environmental Impacts.....	2-5
2.5	NO ACTION ALTERNATIVE .....	2-6
2.6	EVALUATION CRITERIA .....	2-6
2.7	ALTERNATIVES ELIMINATED FROM DETAILED STUDY .....	2-6
2.7.1	Replacement of existing Prather water line.....	2-6
2.8	COMPARISON OF VIABLE ALTERNATIVES.....	2-6
2.9	PUBLIC COMMENTS.....	2-8
<b>3.0</b>	<b>AFFECTED ENVIRONMENT .....</b>	<b>3-1</b>
3.1	SOILS .....	3-1
3.1.1	Definition of Resource .....	3-1
3.1.2	Existing Conditions.....	3-1
3.2	WATER RESOURCES .....	3-2
3.2.1	Definition of Resource .....	3-2
3.2.2	Existing Conditions.....	3-2
3.3	AIR QUALITY .....	3-3
3.3.1	Definition of Resource .....	3-3
3.3.2	Existing Conditions.....	3-5
3.4	BIOLOGICAL RESOURCES .....	3-6
3.4.1	Definition of Resource .....	3-6
3.4.2	Existing Conditions.....	3-7
3.5	CULTURAL RESOURCES .....	3-9
3.5.1	Definition of Resource .....	3-9
3.5.2	Existing Conditions.....	3-9
3.6	LAND USE .....	3-12
3.6.1	Definition of Resource .....	3-12
3.6.2	Existing Conditions.....	3-13
3.7	AESTHETICS AND NOISE .....	3-13



3.7.1	Definition of Resource .....	3-13
3.7.2	Existing Conditions.....	3-13
3.8	SOLID AND HAZARDOUS WASTE.....	3-14
3.8.1	Definition of Resource .....	3-14
3.8.2	Existing Conditions.....	3-14
3.9	SOCIOECONOMICS .....	3-14
3.9.1	Definition of Resource .....	3-14
3.9.2	Existing Conditions.....	3-14
3.10	ENVIRONMENTAL JUSTICE .....	3-15
3.10.1	Definition of Resource .....	3-15
3.10.2	Existing Conditions.....	3-16
4.0	ENVIRONMENTAL CONSEQUENCES .....	4-1
4.1	SOIL RESOURCES.....	4-1
4.1.1	Methodology .....	4-1
4.1.2	Potential Impacts .....	4-1
4.2	WATER RESOURCES .....	4-2
4.2.1	Methodology .....	4-2
4.2.2	Potential Impacts .....	4-2
4.3	AIR QUALITY .....	4-4
4.3.1	Methodology .....	4-4
4.3.2	Potential Impacts .....	4-5
4.4	BIOLOGICAL RESOURCES .....	4-6
4.4.1	Methodology .....	4-6
4.4.2	Potential Impacts .....	4-6
4.5	CULTURAL RESOURCES .....	4-10
4.5.1	Methodology .....	4-10
4.5.2	Potential Impacts .....	4-10
4.6	LAND USE.....	4-12
4.6.1	Methodology .....	4-12
4.6.2	Potential Impacts .....	4-13
4.7	AESTHETICS AND NOISE .....	4-14
4.7.1	Methodology .....	4-14
4.7.2	Potential Impacts .....	4-14
4.8	SOLID AND HAZARDOUS WASTE.....	4-15
4.8.1	Methodology .....	4-15
4.8.2	Potential Impacts .....	4-16
4.9	SOCIOECONOMICS .....	4-16
4.9.1	Methodology .....	4-16
4.9.2	Potential Impacts .....	4-16
4.10	ENVIRONMENTAL JUSTICE .....	4-17
4.10.1	Methodology .....	4-17
4.10.2	Potential Impacts .....	4-18
5.0	CUMULATIVE IMPACTS .....	5-1
6.0	LIST OF PREPARERS.....	6-1
7.0	PERSONS AND AGENCIES CONTACTED .....	7-1

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<b>8.0 ACRONYMS .....</b>	<b>8-1</b>
<b>9.0 REFERENCES.....</b>	<b>9-1</b>

## FIGURES AND TABLES

Figure 1-1 General Location Map.....	1-2
Figure 1-2 Otero County Land Ownership and Use .....	1-3
Figure 2-1 Project Area Showing Alternatives A, B, C.....	2-1
Table 1-1 Potential Permit Requirements .....	1-5
Table 2-1 Potential Environmental Impacts of the Proposed Alternatives.....	2-7
Table 3-1 Air Pollutant Concentration Standards .....	3-4
Table 3-2 Avian Species Observed During Field Surveys .....	3-8
Table 3-3 Regional Chronology.....	3-10
Table 3-4 Five-Year Employment Comparison for Otero County .....	3-15

## APPENDICES

Appendix A	Site Photos
Appendix B	Threatened, Endangered, and Rare Species Information
Appendix C	Public Notice
Appendix D	Public Meeting Roster



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## 1.0 INTRODUCTION

This Environmental Assessment (EA) addresses a proposal by the U.S. Air Force (USAF) for replacement of aging infrastructure to improve the Prather Water Line that serves Holloman Air Force Base (HAFB) in Alamogordo, New Mexico. This EA is prepared in accord with the National Environmental Policy Act, 1969 (NEPA, 42 United States Code [USC] 4321-4347), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] 1500-1508), and Air Force Instruction (AFI) 32-7061, Environmental Impact Analysis Process (EIAP) as promulgated in 32 CFR 989.

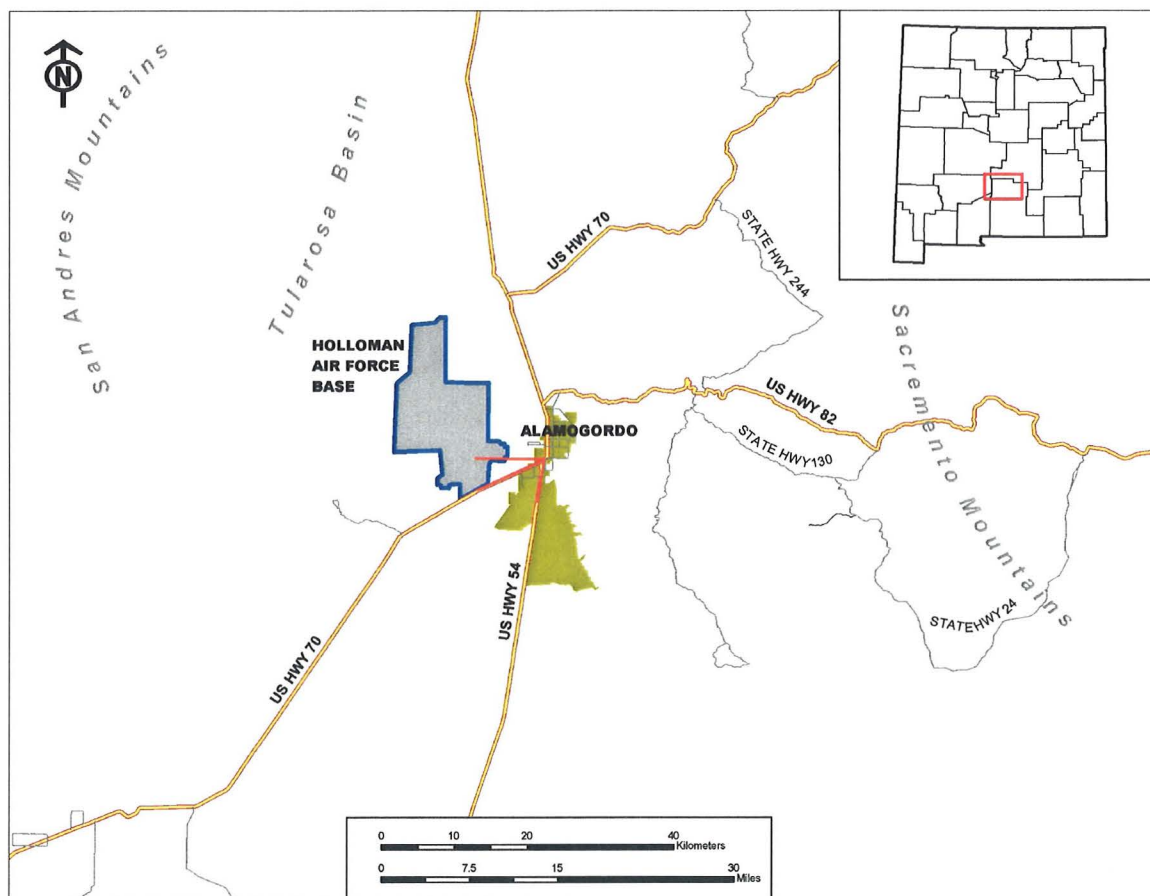
This EA addresses the environmental aspects of the project area that would potentially affect or be affected by the proposed project. These are: soils, water resources, air quality, biological resources (wildlife, plants, and sensitive species), cultural resources, land use, aesthetics (visual and aural), solid and hazardous wastes, socioeconomics (population, employment) and environmental justice. Chapter 1 provides background and overview of the proposed project, the purpose and need for the Proposed Action, the scope of the EA and regulatory compliance requirements. Chapter 2 describes the Proposed Action and Alternatives. Chapter 3 provides a description of the affected environment and resources. Chapter 4 discusses the environmental impacts of the Preferred Alternatives and No Action Alternative. Chapter 5 summarizes cumulative consequences of the Proposed Action in combination with other recent, ongoing, or reasonably foreseeable projects in the affected area.

### 1.1 BACKGROUND

The existing Prather water line is approximately three and a half miles in length, running north-south between U.S. Highway 54/70 and HAFB's Boles Wells Water System Annex (BWWSA) south of the City of Alamogordo (CoA), New Mexico (Figure 1-1). Three miles parallel and/or run under Hamilton Road, an asphalt two-lane street. The northern two miles of Hamilton Road are within the City of Alamogordo and pass through the municipal golf course and a suburban-density housing development. The southern mile is maintained by Otero County and passes through a semi-rural residential area that has been developed into three to five acre lots. The last half mile is dirt road within the BWWSA.

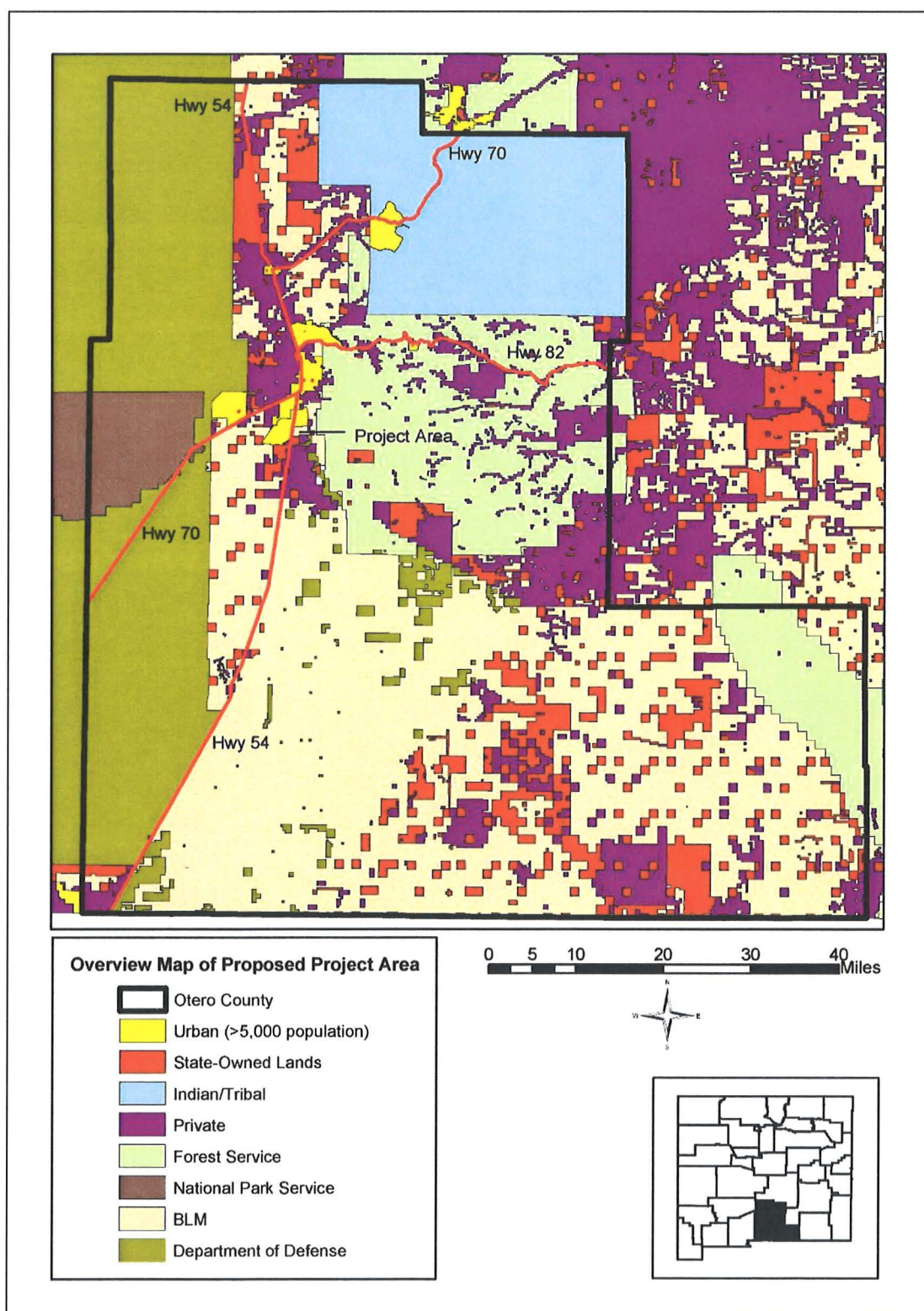
The primary purpose of the annex is to help provide a continuous source of potable water for HAFB. The southern portion of the BWWSA borders McGregor Range of Fort Bliss, U.S. Army. Lands to the east of the annex are mostly under jurisdiction of the Bureau of Land Management (BLM) and the Lincoln National Forest. In between, and to the west of the well fields, is a mosaic of private lands, BLM lands, and U.S. Park Service lands (White Sands National Monument). An overview map depicting general land ownership for Otero County is provided in Figure 1-2.

The Prather water line connects the City water lines to HAFB lines in the BWWSA and is the only major connection between the City and the HAFB water system. It is critical to Holloman's infrastructure. The current Prather water line was built in the 1950's and is well beyond its original life expectancy and breaks frequently.



**Figure 1-1. Location of Holloman AFB and the City of Alamogordo.**





**Figure 1-2. Otero County Land Ownership and Use.**

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## 1.2 PURPOSE AND NEED FOR THE ACTION

The purpose of this action is to improve the HAFB water supply reliability by replacing the old Prather pipeline. The need is because the current 16" steel reinforced concrete cylinder pipe, placed in the 1950s, is greatly corroded and breaks and leaks frequently. This project would replace all valves and fittings and tie-in to existing connections on the north and south end, with all new pipe, valves and fittings routed in a new location.

## 1.3 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

### 1.3.1 Scoping

Several environmental concerns were identified to address in the EA. These were based on the nature of the proposed work and an understanding of local conditions.

- Potential for hindrance to wildlife movement throughout the project area;
- Potential for ground disturbance to affect sensitive or protected species and/or their habitat;
- Potential for construction impacts to cultural resources; and
- Potential for impedance of proper water drainage and aesthetics on upstream lands.

Opportunity to comment on the selection criteria, the scope, and this resulting analysis, was provided to federal and state agencies, the CoA, Otero County and to concerned citizens by mail; and, by a public meeting held in Alamogordo, New Mexico on 31 Mar 2005. The meeting was well attended, entailed a lively discussion, and public comments were received (see roster in Appendix D).

### 1.3.2 Environmental Impact Analysis

This EA addresses potential impacts that could result from improving the Prather water line system. It examines potential impacts generated directly from construction activities, and the environmental benefits or disadvantages of alternatives to the proposed project. A field survey was conducted by contract archeologists and a biologist on June 10 through June 12, 2008. Previously drafted environmental documents relevant to the project area and proposed project were also used as part of this assessment. Based on identified issues and the types of activities involved, resources addressed include: soil, water, air, biological and cultural resources, land use, aesthetic resources, solid and hazardous waste, socioeconomics, and environmental justice.

The USAF or construction contractor would acquire any permits and licenses required for the Prather water line improvement project. Environmental laws and regulations that may require permits include, but are not limited to: National Historic Preservation Act of 1979; Clean water Act of 1977; Endangered Species Act of 1973; Fish and Wildlife Conservation Act of 1980; Historic Site Act of 1935; Noise Control Act of 1972; and Clean Air Act of 1970.



## 1.4 REGULATORY COMPLIANCE

This EA has been prepared principally to comply with NEPA. It also addresses the proposed action's compliance with other applicable environmental laws and regulations. Table 1-1 summarizes the requirements of NEPA and reviews other key federal environmental regulatory requirements applicable to the proposed Prather Pipeline Replacement project.

**TABLE 1-1 POTENTIAL PERMIT REQUIREMENTS**

<i>Type of Permit or Regulatory Requirement</i>	<i>Requirement</i>	<i>Agency</i>
National Environmental Policy Act	Required for approval of federal project.	Council on Environmental Quality, U.S. Department of the Air Force
Clean Water Act Section 404	Required for authorizing fill within wetlands or other waters of the U.S.	U.S. Army Corps of Engineers
Clean Water Act	National Pollutant Discharge Elimination System, Storm Water Pollution Prevention Permit.	U.S. Environmental Protection Agency and State of New Mexico
Clean Air Act and Amendments	Establishes national standards and requires conformity to state plans.	U.S. Environmental Protection Agency and State of New Mexico
Safe Drinking Water Act	Establishes standards and procedures for public water supply systems.	
National Historic Preservation Act	Requires federal agencies to avoid adverse affects on cultural resources.	New Mexico State Historic Preservation Office
Executive Order (EO) 13084, Consultation and Coordination with Indian Tribal Governments	Required to consult with tribal entities on federal projects.	U.S. Department of Defense
EO 13112, Invasive Species	Required to prevent/control spread of invasive weeds on federal lands and as a result of federal projects.	National Invasive Species Council (multiple agencies)
EO 11990, Protection of Wetlands	Required to avoid impacts to or loss of wetlands.	U.S. Army Corps of Engineers and State of New Mexico
EO 11988, Floodplain Management	Required to avoid effects on or development in floodplains.	U.S. Army Corps of Engineers and State of New Mexico
EO 12372, Intergovernmental Review of Federal Programs	Requires federal agencies to cooperate with and consider state and local views.	U.S. Air Force
EO 12898, Environmental Justice	Addresses potential disproportionate effects on minority and low-income populations.	U.S. Air Force
EO 13045, Protection of Children from Environmental Health Risks and Safety Risks	Requires federal agencies to consider potential disproportionate health and safety risks to children.	U.S. Air Force
Endangered Species Act	Required to consult on impacts of project implementation on federally listed or proposed threatened and endangered species.	U.S. Fish and Wildlife Service and New Mexico Department of Game and Fish

## 2.0 PROPOSED ACTION AND ALTERNATIVES

### 2.1 PROPOSED ACTION

The USAF proposes to improve the Prather water line in Alamogordo, Otero County, New Mexico. The existing Prather water line is approximately three and a half miles in length, running north-south in Hamilton Road between U.S. Highway 54/70 and HAFB's BWWSA. The current water line was built in the 1950's, is well beyond its original life expectancy, and breaks frequently. The current pipeline consists of approximately 18,500 linear feet of 16" steel reinforced concrete cylinder pipe. Pressure relief valves are located along the length of the pipe due to gradient variations. The proposed action is to replace the existing pipeline, all valves and fittings, and tie-in to existing connections utilizing one of three possible alignment alternatives (Figure 2-1).

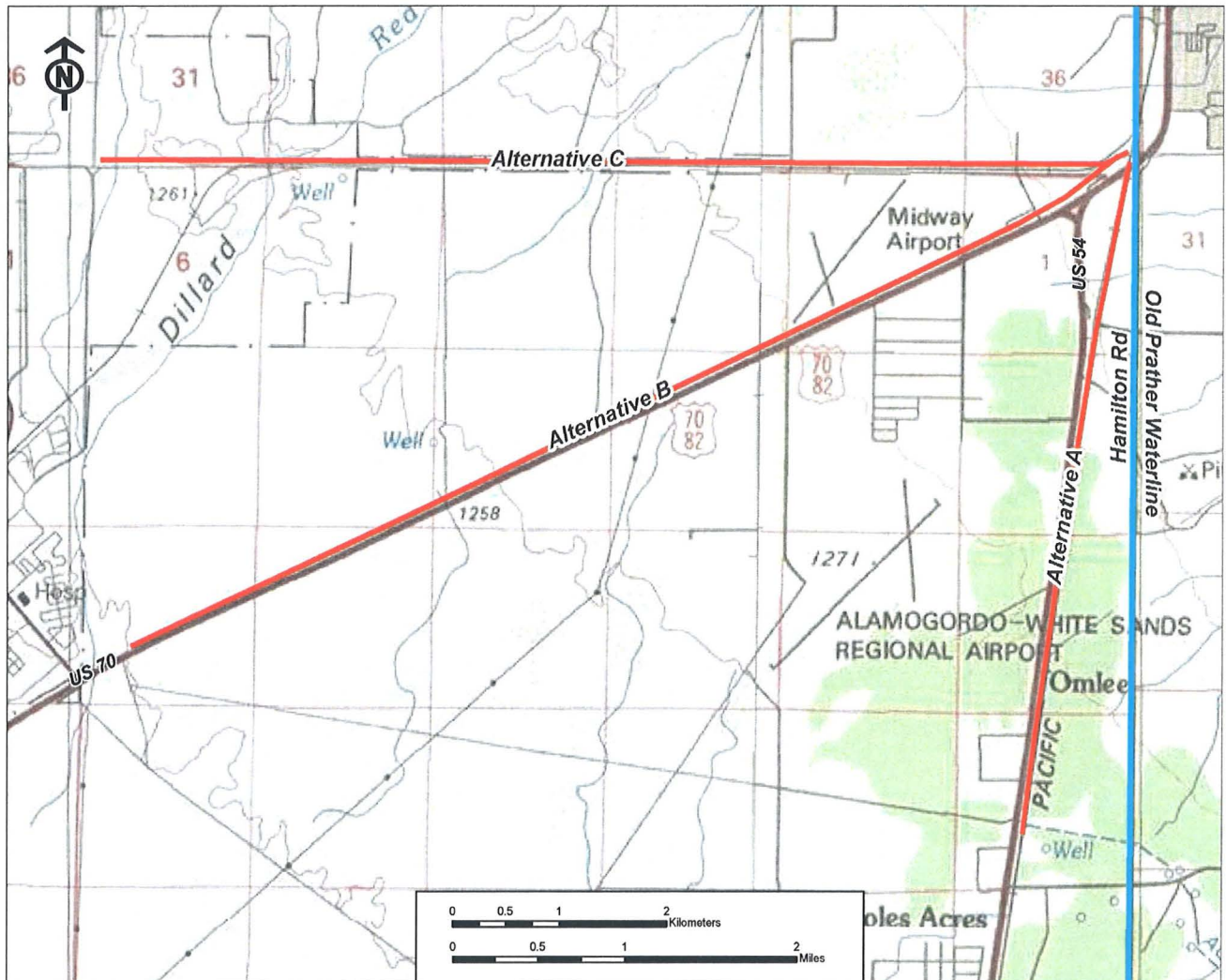


Figure 2-1. Proposed Alternative Routes and Existing Prather Water Line Route.



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### **2.1.2 The Area of Potential Effect**

The Area of Potential Effect (APE) surveyed by EComm consists of three non-contiguous corridors. For the purpose of this study, the corridors have been designated by EComm as Alternatives A (U.S. Highway 54), B (U.S. Highway 70), and C (HAFB Railroad Spur). The structure which houses the City-Prather interconnection was the starting point for the pedestrian survey of each of the proposed alternatives (see site photos in Appendix A).

Alternative A is presently the preferred alternative. The proposed APE originates at the structure which houses the City-Prather interconnection and heads in a southerly direction in a narrow strip of land bounded by the Union Pacific Railroad to the east and U.S. Highway 54 to the west, and terminates at an interconnection point west of the Boles Well Field. The proposed APE is within the U.S. Highway 54 and the Union Pacific right-of-way, paralleling an existing CoA pipeline, and measures 6.1 km (3.78 miles) long with a width ranging in size from 15 to 30 meters (50 to 100 ft), encompassing an area of 12.91 hectares (31.9 acres).

Alternative B originates at the structure which houses the City-Prather interconnection and heads southwest, parallel to the southbound lanes of U.S. Highway 70 and terminates at an interconnection point east of the main entrance to HAFB. The proposed APE lies within the highway right-of-way, and measures 10 km (6.2 miles) long with a width ranging in size from 15 to 30 meters (50 to 100 ft), encompassing a total area of 24.4 hectares (60.3 acres).

Alternative C originates at the structure which houses the City-Prather interconnection and, after passing beneath the Union Pacific Railroad and the Charlie T. Lee Memorial Relief route, heads west, parallel to the abandoned Holloman AFB Railroad Spur, on the south side of the tracks. This route measures 9.6 km (5.95 miles) long with a width of 30 meters (100 ft), and encompasses an area of 28.8 hectares (71.13 acres).

The three alternatives have a combined length of 25.7 km (15.9 miles) and encompass a combined total of 66.11 hectares (163.35 acres).

### **2.2 ALTERNATIVE A: U. S. HIGHWAY 54 (Preferred Alternative)**

Under this alternative, a new pipeline would be constructed within a new 25-foot easement that originates at the City-Prather interconnect point in Alamogordo and is located in the narrow strip of land between U.S. 54 and/or the Union Pacific Railroad. The Preferred Alternative is bounded by the Union Pacific Railroad to the east and U.S. Highway 54 to the west. Adjacent to the northern third of this route are a mobile home park and a convenience store/gas station.

#### **2.2.1 Construction Activity**

Construction would begin in the fall/winter of 2009, and would continue for approximately six months. Prior to installation of the new pipeline, the area would be surveyed and staked to determine proper boundaries, as well as location and size of easements that exist adjacent to the

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property boundaries. Contract language would be included to specify the limit of permissible ground disturbance allowed during construction of the new pipeline.

Approximately 15 drainage features traverse U.S. Highway 54 along the length of the proposed route. These ephemeral drainages are dry for most of the year, and only flow during heavy rain events. These drainages flow from east to west as they pass under the Union Pacific Railroad and U.S. Highway 54. The east-west alignment of the drainage and the north-south alignment of the preferred alternative pipeline route present the shortest distance across these features, which will serve to reduce potential impacts to these drainages during and after pipeline construction.

Under the preferred alternative, disturbance to the drainages is anticipated to be minimal and short in duration. Once construction of the pipeline is completed and the disturbed areas are graded and compacted to their pre-construction elevations, the natural flow of these drainages is anticipated to return to pre-construction levels.

Best Management Practices (BMPs) would be used to control dust and soil erosion during construction. In general, any improvements that are removed or damaged would be replaced with similar structures and products.

Pipeline construction, assuming a 25-foot-wide area of disturbance, would disturb approximately 11 acres of land, all of which have been cleared and graded during previous construction and improvement activities associated with U.S. Highway 54, the adjacent Union Pacific Railroad, and the CoA pipeline.

### **2.2.2 Actions to Reduce Potential for Environmental Impacts**

Several methods would be utilized to minimize potential impacts from construction. Any plans, standards, or practices required by local, state, and federal law would be observed. Specific methods include:

- Storm Water Pollution Prevention Plan (SWPPP) prepared by the construction contractor in accordance with any local, state, and federal requirements. The plan would describe all methods used to control storm water runoff and soil erosion during and following construction;
- Heavy equipment and other construction vehicles would not be allowed in areas beyond the narrow limit of disturbance; and
- By terms of contract, any property or structures, including those of adjacent landowners, removed or damaged during construction would be repaired or replaced.

## **2.3 ALTERNATIVE B: U.S. HIGHWAY 70**

Alternative B would replace an existing, out-of-service 10 inch pipe paralleling U.S. Highway 70, from the City-Prather interconnect in Alamogordo to HAFB in an existing HAFB easement within the existing U.S. Highway 70 right-of-way. Alternative B is bordered on the northwest by the U.S. Highway 70 ROW fence and on the south by the highway shoulder. There are commercial



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enterprises, scattered residences, a small parcel of BLM land, and state trust land bordering U.S. 70 Highway along this route.

### **2.3.1 Construction Activity**

Construction would begin in the fall/winter of 2009, and would continue for approximately six months. Prior to installation of the new pipeline, the area would be surveyed and staked to determine proper boundaries, as well as location and size of easements that exist adjacent to the property boundaries. Contract language would be included to specify the limit of permissible ground disturbance allowed during construction of the new pipeline.

No discernable drainage features were observed adjacent to or intersecting with U.S. Highway 70 during the field surveys of Alternative B. This is likely due to the flat, basin floor topography. Under Alternative B, no disturbance to existing drainages features is anticipated.

Best Management Practices (BMPs) would be used to control dust and soil erosion during construction. Any improvements that are removed or damaged would be replaced with similar structures and products.

Pipeline construction, assuming a 25-foot wide area of disturbance, would disturb approximately 19 acres of land, all of which have been cleared and graded during previous construction and improvement activities associated with U.S. Highway 70.

### **2.3.2 Actions to Reduce Potential for Environmental Impacts**

Several methods would be utilized to minimize potential impacts from construction. Any plans, standards, or practices required by local, state, and federal law would be observed. Specific methods include:

- Storm Water Pollution Prevention Plan (SWPPP) prepared by the construction contractor in accordance with any local, state, and federal requirements. The plan would describe all methods used to control storm water runoff and soil erosion during and following construction;
- Heavy equipment and other construction vehicles would not be allowed in areas beyond the narrow limit of disturbance; and
- By terms of contract, any property or structures, including those of adjacent landowners, removed or damaged during construction would be repaired or replaced.

## **2.4 ALTERNATIVE C: HAFB RAILROAD SPUR**

Alternative C would construct 6.5 miles of new pipeline along the abandoned HAFB Railroad Spur, running from the City-Prather interconnect point in Alamogordo west to HAFB. Alternative C runs east-west, parallel to the abandoned Holloman Railroad Spur. The eastern 2.6 km-long segment is bounded by Mayflower Road on the south and the railroad spur line and commercial or ranch properties to the north for most of its length while the western portion passes through open country bounded to the south by County Road A028 and other unnamed graded gravel roads.

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### **2.4.1 Construction Activity**

Construction would begin in the fall/winter of 2009, and would continue for approximately six months. Prior to installation of the new pipeline, the area would be surveyed and staked to determine proper boundaries, as well as location and size of easements that exist adjacent to the property boundaries. Contract language would be included to specify the limit of permissible ground disturbance allowed during construction of the new pipeline.

Approximately 9 drainage features traverse the HAFB Railroad Spur along the length of the route. These ephemeral drainages are dry for most of the year, and only flow during heavy rain events. These drainages flow from northeast to southwest and many were deflected from their original course by the elevated railroad bed and associated borrow ditch. Several of these drainage features have re-established their original course by undermining the railroad.

Under Alternative C, disturbance to the drainages is anticipated to be minimal and short in duration. Once construction of the pipeline is completed and the disturbed areas are graded and compacted to their pre-construction elevations, the flow and position of these drainages are anticipated to return to pre-construction conditions.

Best Management Practices (BMPs) would be used to control dust and soil erosion during construction. Any improvements that are removed or damaged would be replaced with similar structures and products.

Pipeline construction, assuming a 25-foot wide area of disturbance, would disturb approximately 18 acres of land, all of which have been previously disturbed during construction and improvement activities associated with the HAFB Railroad Spur and associated access roads.

### **2.4.2 Actions to Reduce Potential for Environmental Impacts**

Several methods would be utilized to minimize potential impacts from construction. Any plans, standards, or practices required by local, state, and federal law would be observed. Specific methods include:

- Storm Water Pollution Prevention Plan (SWPPP) prepared by the construction contractor in accordance with any local, state, and federal requirements. The plan would describe all methods used to control storm water runoff and soil erosion during and following construction;
- Heavy equipment and other construction vehicles would not be allowed in areas beyond the narrow limit of disturbance; and
- By terms of contract, any property or structures, including those of adjacent landowners, removed or damaged during construction would be repaired or replaced.



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## 2.5 NO ACTION ALTERNATIVE

Under this alternative, the current Prather water line would not be replaced and the existing water supply to HAFB would not change. This alternative is not a viable alternative because no action would result in the continued failing of the existing system and would not improve the reliability of water supply for HAFB. However, this alternative has been carried through the document for environmental analysis.

## 2.6 EVALUATION CRITERIA

Evaluation criteria of alternatives included the following:

1. Water supply capability,
2. Long-term effectiveness,
3. Manpower resources,
4. Equipment resources,
5. Long-term maintenance requirements,
6. Impact of the remote location,
7. Vandalism vulnerability,
8. Exposure to elements, and
9. Availability of electric power.

## 2.7 ALTERNATIVES ELIMINATED FROM DETAILED STUDY

### 2.7.1 Replacement of existing Prather Water Line and Alternate Routes

Seven alternatives were originally discussed. Four were not carried forward for in depth analysis. (1) In-place bursting and slip lining the existing pipeline was found not feasible due to mineralization and workability limits of the steel-lined cable-wrapped concrete pipe currently in place. Placing a new pipeline along: (2) the Old El Paso Highway from the BWWSA to CoA facilities on Panorama Drive, or (3) along the La Luz Gate Road from the Bonito Pipeline at US 54/70 to base; would be far more expensive than practical. (4) Replacing the existing pipeline in the Hamilton Road alignment was the original plan, but during the public meeting and subsequent meetings with the City Manager and utility personnel it became readily apparent that so many water, sewer, electrical and communications lines had been laid across and beside the existing Prather pipeline that reconstruction in Hamilton road would be a very complicated process. Thus, the above four alternatives were eliminated, and the analysis concentrated on the three viable alternatives; A-US54, B-US70 and C HAFB Railroad Spur, and the requisite "No Action" alternative.

## 2.8 COMPARISON OF VIABLE ALTERNATIVES

Table 2-1 summarizes the environmental impacts of the preferred alternative and the No Action alternative. These are carried through the document for further evaluation.

**TABLE 2-1 POTENTIAL ENVIRONMENTAL IMPACTS OF ALTERNATIVES**

Resource	Preferred Alternative	U.S. Hwy 70 Alternative	Railroad Alternative	No Action Alternative
Soils	No significant impact with erosion control measures.	No significant impact with erosion control measures.	No significant impact with erosion control measures.	No Impact
Water Resources	No significant impact to surface water resources with erosion control measures.	No significant impact to surface water resources with erosion control measures.	No significant impact to surface water resources with erosion control measures.	No impact to surface water resources. Impact to water supply for HAFB. Current water line is failing.
Air Quality	Short term impacts due to construction activities. No long term impacts anticipated.	Short term impacts due to construction activities. No long term impacts anticipated.	Short term impacts due to construction activities. No long term impacts anticipated.	No Impact
Biological Resources	Insignificant loss of wildlife habitat; minimal effect from loss of small amount of scrubland vegetation.	Insignificant loss of wildlife habitat; minimal effect from loss of small amount of scrubland vegetation.	Insignificant loss of wildlife habitat; minimal effect from loss of small amount of scrubland vegetation.	No Impact
Cultural Resources	No short or long term impacts anticipated.	No short or long term impacts anticipated.	No short or long term impacts anticipated.	No Impact
Land Use	No long-term impact on land use resources.	No long-term impact on land use resources.	No long-term impact on land use resources.	No Impact
Aesthetics / Noise	Short term impacts due to construction activities. No long term impacts.	Short term impacts due to construction activities. No long term impacts.	Short term impacts due to construction activities. No long term impacts.	No Impact
Solid and Hazardous Waste	Short term increase in solid waste materials – no impact as these would be properly disposed. No long term impacts anticipated.	Short term increase in solid waste materials – no impact as these would be properly disposed. No long term impacts anticipated.	Short term increase in solid waste materials – no impact as these would be properly disposed. No long term impacts anticipated.	No Impact
Socioeconomics	Beneficial change due to increased water reliability, and minor local benefit of construction jobs.	Beneficial change due to increased water reliability, and minor local benefit of construction jobs.	Beneficial change due to increased water reliability and minor local benefit of construction jobs.	Water reliability issues will continue under the No Action Alternative.
Environmental Justice	No Impact	No Impact	No Impact	No Impact

The decision makers are not bound to choose a “best” environmental alternative. Any alternative that meets the need within available resources and constraints may be selected as long as the National Environmental Policy Act process is followed, the alternatives are studied and considered, and the appropriate authority makes an informed decision.



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## 2.9 PUBLIC COMMENTS

The Prather water pipeline replacement project was originally included in the scope of a previous analysis, the “Wing Infrastructure Development Outlook Environmental Assessment” (WINDO), that was initiated in 2003 and conducted through 2004 and 2005. That document addressed ten relatively large projects on HAFB, and the Prather pipe line replacement which is off-base. When the Public Draft WINDO EA was through the internal review cycle and released for public review, a Public Information Meeting was announced to gather comments on the Draft EA.

At the 31 March 2005 Public Information Meeting (roster in Appendix D), a few inconsequential comments were received on the proposed actions on base, but numerous questions and comments were addressed to the proposal to rebuild the Prather pipeline within Hamilton Road. The comments of consequence fell into two categories:

1. Due to development of the golf course and surrounding suburbs, numerous water, sewer and gas pipes, and electrical and communications cables parallel and cross the old Prather water pipeline. Excavation would be slow and costly for at the least two miles within Alamogordo, and there was thought to be a high probability of causing inadvertent service outages.
2. Hamilton Road is primary access to numerous homeowners, the Elk’s Club, and the Municipal Golf Course. During parts of the project, detours of a mile to several miles would be required for many people to get home. The potential for traffic accidents was thought likely to increase due to side streets and roads carrying the arterial flow detoured from Hamilton.

Follow-up discussions with CoA and utility managers confirmed the probable complexity of excavation and the character of the traffic issues which would result from renovating the pipeline in Hamilton Road. While not particularly significant from an environmental perspective, utility outages and traffic problems could be detrimental to human health and safety, and would likely cause bad publicity. Individuals and agencies who had commented against the Hamilton route were notified that the Prather pipeline would not be rebuilt in Hamilton Road.

The analysis of the Prather pipeline replacement was not carried forward in the WINDO EA, but repair or replacement of the pipeline remains needed. In May 2008, concerned parties (roster in Appendix D) met to identify alternatives, sort those alternatives for viability, propose new routing for the Prather line and initiate this current EA. Comment from other agencies and the City of Alamogordo has been favorable.

Appendix C contains a copy of the public notice and Appendix D contains the rosters from the previous public meetings.

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### **3.0 AFFECTED ENVIRONMENT**

This section describes the existing environmental and socioeconomic conditions of the potential region of impact for this proposed pipeline improvement project. This section provides information that should serve as a baseline from which to identify and evaluate any environmental and socioeconomic changes likely to result from the implementation of the Proposed Action.

In compliance with NEPA, CEQ guidelines, and 32 CFR 989 et seq., the description of the affected environment focuses on those resources and conditions potentially subject to any impacts. These resources and conditions include: soils, water resources, air quality, biological and cultural resources, land use, aesthetics and noise, solid and hazardous waste, socioeconomics and environmental justice.

#### **3.1 SOILS**

##### **3.1.1 Definition of Resource**

This section discusses soils within the region of influence because surface disturbance would result from implementation of the alternatives other than the No Action Alternative. Soils are comprised of unconsolidated weathered minerals and organic material at the ground surface in which plants grow. The area of influence for soils includes an approximately 25-foot wide area running the length of each of the proposed alternative routes. The underlying geology would not be affected and will only be characterized as it has influenced the soils described in the affected environment.

##### **3.1.2 Existing Conditions**

The project area is located within the Mexican Highland Section of the Basin and Range physiographic province (Hawley 1986). The province includes a large portion of the western U.S. and is characterized by block-faulted ranges separated by broad inter-montane basins. River valleys are relatively narrow and cut into basin fill or the older underlying rock. The Tularosa Basin is the easternmost basin within the Basin and Range physiographic province. Much of the basin is covered with deposits of gypsum, alluvial and aeolian sand, gravel, and clay, and alkali flats of varying thickness, with basalt lava beds in the northern portion of the valley.

The easternmost portion of Alternative A is situated on the distal portion of an alluvial fan originating in the Sacramento Mountains and is characterized by very slight slopes (1-2°) and sandy to silty deposits that are aeolian and alluvial in origin. Soils in the project area were formed on flood plains and lower parts of the pediment side slopes of drainages from the Sacramento Mountains to the east of the project area. The soils were formed from calcareous alluvial material derived from limestone and aeolian material that are deposited by water from the surrounding uplands. Soils in the area of Alternative A consist entirely of three variants of Teme silt loams (TDB), a deep, well drained, nearly level to gently sloping soil with moderately slow permeability and high available water capacity. The TcA and TcB variants are very fine silt loams, while the TeB variant is slightly coarser (NRCS 1988).



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Soils in the southern half of the Alternative B area adjacent to U.S. Highway 70 consist mostly of calcareous, Holloman-Gypsum land-Yesum complex (HOB) very fine sandy loams which formed in gypsiferous aeolian and alluvial sediments. Soils in the northern portion of Alternative B consist of very fine, well-drained sandy loams of the Holloman-Reeves association (HPB) and the Gypsum land-Holloman complex (GZB). Both soil types are highly calcareous, having formed in gypsiferous alluvial and aeolian sediments. The northernmost part of Alternative B consists of Tome silt loam (TDB) (NRCS 1988).

The soils along Alternative C are much more variable than those on Alternatives A and B. At the west end of Alternative B, the soils consist of highly variable Ustic Torriorthents (UaA) along drainages and Gypsum land (GyE) on adjacent slopes; both complexes are calcareous. Ustic complex soils are commonly comprised of silt loams and clay loams underlain by a substrate of very fine sandy loam which contains some gypsum. Gypsum land sediments are comprised mainly of gypsum with some fine sands on the surface. The sediments are gypsiferous and extremely calcareous and are easily eroded. Moving eastward along Alternative C, the soils consist of a slope-dependent patchwork of Alamogordo (AbB) and Alamogordo Variant (Aka) very fine sandy loams; Tome very fine sandy loams (TcA) and, on shallow slopes, silt loams (TeB); and two variants (RbA and RdA) of Reeves very fine sandy loam (NRCS 1988).

All of the soils in the project area are calcareous, and all but the Reeves soils exhibit calcium carbonate concentrations that decrease with depth. The calcium carbonate content of the Reeves soils increases with depth.

## **3.2 WATER RESOURCES**

### **3.2.1 Definition of Resource**

Water resources include both surface and ground water resources. Surface water is generally limited to minor ephemeral stream drainages within the proposed project area similar to Photos 9 and 10 in Appendix A. Ground water beneath the project area is recharged by surface and subterranean flow from the mountains to the East.

### **3.2.2 Existing Conditions**

The project area is located within the Tularosa Basin, which comprises approximately 5% of the greater Rio Grande drainage system, although no surface flow connects the Tularosa Basin to the modern Rio Grande. Precipitation on the surrounding mountain slopes flows via ephemeral streams toward the center of the basin, or as groundwater through alluvial deposits and permeable formations below the stream channels (NMISC 2002). The main perennial streams of the basin are the upper reaches of Three Rivers, Tularosa Creek and El Rito de La Luz (none of which are close to the current project AOE). The basin is covered with deposits of gypsum, alluvial and aeolian sand, gravel, clay, and alkali flats of varying thickness, with basaltic lava beds in the northern portion of the valley.

No perennial streams flow within surrounding area, although surface water is available in Lost River and Lake Holloman. Most precipitation events in the local ecosystem occur as summer monsoons

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and large storm events falling on the rocky slopes of the Sacramento Mountains. Precipitation is absorbed quickly by the gravels and silty sandy soils at the base of the alluvial fans. During these precipitation events, runoff that is not immediately absorbed flows down gradient via numerous shallow cuts and arroyos, which create a random network of drainages that abruptly end or gradually disappear as water seeps into the soil. During heavy precipitation events, flooding is common at lower elevations and the margins of the basin floor.

Groundwater recharge occurs largely from rainfall and snowmelt in the basin and the west front of the Sacramento Mountains. Perennial and intermittent stream waters infiltrate loosely consolidated, coarse, alluvial fan material and permeable bedrock flowing toward the center of the basin.

The majority of the water supply of most of the Tularosa Basin, including HAFB, is provided by groundwater sources, although surface water capture from Tularosa, La Luz and Alamo Canyons, and water from Bonita Lake are critical supplements. Peak water usage for Holloman AFB in recent history has been about 3.5 million gallons per day (mgd), based on monthly data, with an average of about 1.5 mgd. Comparatively, the City of Alamogordo uses a peak of 8 mgd.

### 3.3 AIR QUALITY

#### 3.3.1 Definition of Resource

Air quality in a given location is determined by the concentration of various pollutants in the atmosphere. The significance of a pollutant concentration in a region or geographical area is determined by comparing it to federal and/or state ambient air quality standards. Under the authority of the Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) has established nationwide air quality standards to protect public health and welfare, with an adequate margin of safety. These federal standards, known as the National Ambient Air Quality Standards (NAAQS), represent maximum allowable atmospheric concentrations and were developed for six “criteria” pollutants: ozone (O<sub>3</sub>); nitrogen dioxide (NO<sub>2</sub>); carbon monoxide (CO); respirable particulate matter less than 10 micrometers in diameter (PM<sub>10</sub>); sulfur dioxide (SO<sub>2</sub>); and lead (Pb).

The USEPA designates areas of the U.S. as having air quality equal to or better than the NAAQS as “attainment” or worse than the NAAQS as “non-attainment”. Former nonattainment areas that have recently achieved attainment of the NAAQS are designated as maintenance areas. Areas are designated as unclassifiable for a pollutant when there is insufficient ambient air quality data for the USEPA to form a basis of attainment status. The proposed project area is in “Attainment” status.

The NAAQS are defined in terms of concentration (e.g., parts per million [ppm] or micrograms per cubic meter [ $\mu\text{g}/\text{m}^3$ ]) determined over various periods of time called “averaging periods”. Short-term standards (1-hour, 8-hour, or 24-hour periods) were established for pollutants with acute health effects and may not be exceeded more than once per year. Long-term standards (annual periods) were established for pollutants with chronic health effects and may never be exceeded.

In 1997, the USEPA promulgated two new standards: a new 8-hour O<sub>3</sub> standard and a new standard called PM<sub>2.5</sub>, which are fine particles with diameters less than 2.5 microns that have not been previously regulated. In addition, the USEPA revised the existing PM<sub>10</sub> standard. The two new



standards were scheduled for implementation over a period of several years, as monitoring data became available to determine the attainment status of areas in the U.S. However, the USEPA was challenged in courts on these new and revised standards, and in May 1999, the U.S. District of Columbia Court of Appeals issued a ruling stating that the CAA as applied and absent further clarification “effects an unconstitutional delegation of legislative power.” Furthermore, the court stated that:

- The new 8-hour O<sub>3</sub> standard was remanded back to the USEPA for further consideration and “cannot be enforced”;
- The new PM<sub>2.5</sub> standard was allowed to remain in place, but affected parties can apply to have this standard vacated under certain conditions; and,
- The revised PM<sub>10</sub> standard was vacated and replaced by the pre-existing PM<sub>10</sub> standard.

The case was appealed to the U.S. Supreme Court, and in February 2001, the court upheld the 8-hour O<sub>3</sub> standard and instructed the USEPA to develop a reasonable interpretation of the nonattainment implementation provisions. The 8-hr averaged standard is determined by calculating the average of the fourth highest readings at each monitor over a three-year period. In April 2004, the USEPA designated 474 counties as non-attainment for the new 8-hour standard, and assigned maximum attainment periods for each. A summary of the federal and New Mexico ambient air quality standards that apply to the proposed project area is presented in Table 3-1.

**TABLE 3-1 AIR POLLUTANT CONCENTRATION STANDARDS**

<i>Air Pollutant</i>	<i>Averaging Time</i>	<i>Federal NAAQS (maximum levels)</i>		<i>NM State AAQS (maximum levels)</i>	
		<i>Primary</i>	<i>Secondary</i>	<i>Primary</i>	<i>Secondary</i>
Total Suspended Particulates	24-hour avg	---	---	150 µg/m <sup>3</sup>	---
	7-day avg	---	---	110 µg/m <sup>3</sup>	---
	30-day avg	---	---	90 µg/m <sup>3</sup>	---
	AGM	---	---	60 µg/m <sup>3</sup>	---
Sulfur Dioxide (SO <sub>2</sub> )	24-hour avg	0.14 ppm	---	0.10 ppm	---
	AAA	0.03 ppm	---	0.02 ppm	---
	3-hr avg	---	0.5 ppm	---	0.5ppm
Hydrogen Sulfide (H <sub>2</sub> S)	1-hr avg	---	---	0.010 ppm	---
Total Reduced Sulfur	1/2-hr avg	---	---	0.003 ppm	---
Carbon Monoxide (CO)	8-hr avg	9 ppm	---	8.7 ppm	---
	1-hr avg	35 ppm	---	13.1 ppm	---
Nitrogen Dioxide (NO <sub>2</sub> )	24-hr avg	---	---	0.10 ppm	---
	AAA	0.053 ppm	0.053 ppm	0.05 ppm	0.053 ppm
Ozone (O <sub>3</sub> )	8-hr avg	0.08 ppm	0.08 ppm	---	---
	1-hr avg	0.12 ppm	0.12 ppm	0.12 ppm	0.12 ppm
Particulate Matter (PM <sub>10</sub> )	24-hr avg	150 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	---	150 µg/m <sup>3</sup>
	AAM	50 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>	---	50 µg/m <sup>3</sup>
Particulate Matter (PM <sub>2.5</sub> )	24-hr avg	65 µg/m <sup>3</sup>	65 µg/m <sup>3</sup>	---	---
	AAM	15 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	---	---
Lead (Pb)	Quarterly avg	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>

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Under the CAA, state and local agencies may establish air quality standards and regulations of their own, provided these are at least as stringent as the federal requirements. For selected criteria pollutants, the state of New Mexico has established its state ambient air quality standards (NMAAQS), which are somewhat more stringent than the federal standards.

The CAA Amendments of 1990 established new federal nonattainment classifications, new emission control requirements, and new compliance dates for nonattainment areas. The requirements and compliance dates are based on the severity of nonattainment classification.

CAA Section 176(c), General Conformity, established certain statutory requirements for Federal agencies with proposed federal activities to demonstrate conformity of the proposed activities with each state's implementation plan (SIP) for attainment of the NAAQS. In 1993, the USEPA issued the final rules for determining air quality conformity. Federal activities must not:

- Cause or contribute to any new violation,
- Increase the frequency or severity of any existing violation, or
- Delay timely attainment of any standard, interim emission reductions, or milestones in conformity to a SIP's purpose of eliminating or reducing the severity and number of NAAQS violations or achieving attainment of NAAQS.

General conformity applies only to nonattainment and maintenance areas. If the emissions from a federal action proposed in a nonattainment area exceed annual thresholds identified in the rule, a conformity determination is required of that action. The thresholds become more restrictive as the severity of the nonattainment status of the region increases.

### **3.3.2 Existing Conditions**

The area generally has clear skies and excellent visibility. A cloud ceiling of less than 3,000 feet above ground level occurs an average of 20 days per year, while visibility less than six miles occurs an average of 22 days per year. Although winds in the region can be strong and gusty in the vicinity of a thunderstorm, typically they are relatively low, averaging 5 mph. The prevailing wind direction is from the west, although southerly winds are common during warmer months.

The atmosphere in the region is generally well mixed. The seasonal and annual average mixing heights can vary from 400 meters in the morning to 4,000 meters in the afternoon. The morning mixing heights are usually low, due to night time heat loss from the ground, which produces surface-based temperature inversions. After sunrise, these inversions quickly break up, and solar heating of the earth's surface results in good vertical mixing in the lower layers of the atmosphere.

Dust is frequently entrained into the atmosphere in this region of the country because of gusty winds and semiarid climate. The Texas Panhandle-southern New Mexico area is considered the worst area in the U.S. for windblown dust, and occasionally the dust is of sufficient quantity to restrict visibility. Most of the seasonal dust storms occur in March and April, when wind speeds are generally higher.



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Otero County is currently designated as an attainment area. Baseline emissions in the area are predominantly from vehicular traffic and other human activities. Management crews for Boles Wells Field typically use pickup trucks and other light duty vehicles for transportation on the job, and only occasionally use larger engine equipment such as farm machinery, earth moving equipment, grading equipment, generators, and other heavy equipment.

### 3.4 BIOLOGICAL RESOURCES

#### 3.4.1 Definition of Resource

Biological resources include native or naturalized plants and animals, and the habitats in which they occur. Although the existence and preservation of biological resources are intrinsically valuable, these resources also provide aesthetic, recreational, and socioeconomic values to society. This section describes plant and animal species or vegetation types that typify the biological resources in the area of the proposed project and focuses on species protected under federal or state law. For purposes of this assessment, sensitive species are plants and animals listed as threatened, endangered, or of concern to the U.S. Fish and Wildlife Service (USFWS), the New Mexico Department of Game and Fish (NMDGF), and the New Mexico Rare Plant Technical Council, which designates state-protected species (see Appendix B).

This section addresses six categories of protection status for species with the potential to occur in the proposed project area. These include: Federal Listed Threatened and Endangered Species; Federal Proposed Species; Candidate Species; State Listed Threatened and Endangered Species; Species of Concern; and State Rare and Sensitive Species.

*Federal Listed Threatened and Endangered Species:* The Endangered Species Act of 1973 (ESA) provides protection to species listed under this category. Endangered species are those species that are in danger of extinction throughout all or a significant portion of their range. Threatened species are those likely to become endangered species in the foreseeable future.

*Federal Proposed Species:* Any species of fish, wildlife, or plant that is proposed in the *Federal Register* to be listed under Section 4 of the ESA.

*Candidate Species:* These are species that the USFWS is considering for listing as federally threatened or endangered but for which a proposed rule has not yet been developed. In this sense, candidates do not benefit from legal protection under the ESA. In some instances, candidate species may be emergency listed if the USFWS determines that the species population is at risk due to a potential or imminent impact. The USFWS encourages federal agencies to consider candidate species in their planning process as they may be listed in the future.

*State Listed Threatened and Endangered Species:* A list of state threatened and endangered species is maintained by the state of New Mexico and these species are protected from harassment, taking, and possession. Similar definitions of threatened and endangered in the federal category apply to the state category. State and federal lists often include the same species.

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*Species of Concern:* Species of concern to the USFWS are species for which there is insufficient information to determine if they should be listed. It is an informal term and these species receive no legal protection under the ESA.

*State Rare and Sensitive Species:* New Mexico rare plant species include species with narrow ranges, or occurrences that are more widespread but are numerically rare.

### **3.4.2 Existing Conditions**

A general survey for sensitive species and other biological features was conducted within the proposed project area in June 2008 in support of this EA. Observations from this survey, as well as information compiled from state and federal records and previous studies, are included below.

#### **3.4.2.1 Vegetation**

Drought conditions along with the seasonal timing of the field surveys prevented the identification of much of the herbaceous vegetation such as wildflowers and grasses. Only those herbaceous species that were positively identified in the field are included in this report.

Most of the project area was dominated by woody shrub species, such as western honey mesquite (*Prosopis glandulosa* var. *torreyana*), four-winged saltbush (*Atriplex canescens*), creosote bush (*Larrea tridentata*), allthorn (*Koeberlinia spinosa*), and exotic/noxious species such as salt cedar (*Tamarix* spp.), Russian knapweed (*Acroptilon repens*), African rue (*Peganum harmala*), and Russian thistle (*Salsola iberica*) or tumbleweed. Many of these are indicative of areas that have been disturbed by activities such as road and railway construction or over-grazing by livestock.

Two of the plant species observed during the field surveys, African rue (*Peganum harmala*) and Russian knapweed (*Acroptilon repens*), are state-listed noxious weeds. Both plants are at risk of spreading with disturbance. Salt Cedar (*Tamarix* spp.) is another exotic species common to the region and project area. HAFB, Otero County, and numerous other agencies are partners in a noxious species control organization and have initiated controls that will continue as funded.

#### **3.4.2.2 Wildlife**

At least 230 bird species have been confirmed at HAFB. Most of these species occupy areas with a greater proportion of riparian or wetland habitat than that found within the proposed project areas. Recent releases of an experimental population of northern aplomado falcon (*Falco femoralis septentrionalis*), about 80 miles northwest of HAFB, have not yet resulted in this falcon being observed in residence at HAFB. Texas horned lizards (*Phrynosoma cornutum*) are known to occur within the project area, as are several other reptiles including: whiptails (*Cnemidophorus* spp.), rattlesnakes (*Crotalus* spp. and *Sistrurus catenatus*), ground snake (*Sonora semiannulata*), desert side-blotched lizard (*Uta stansburiana*), desert spiny lizard (*Sceloporus magister*), and short-horned lizard (*Phrynosoma douglasii*). Mule deer (*Odocoileus hemionus*), mountain lion (*Felis concolor*), ringtail (*Bassariscus astutus*), kit fox (*Vulpes macrotis*), and numerous rodent species are also known to occur in the vicinity.



Much of the project area lies within previously disturbed habitat and in close proximity to urban populations. Despite these disturbances, twenty-eight species of birds were observed during the field surveys (Table 3-2) as well as several other species of wildlife including coyote (*Canis latrans*), desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit, (*Lepus californicus*), pocket gopher (*Thomomys* spp.), desert side-blotched lizard (*Uta stansburiana*), and whiptails (*Cnemidophorus* spp.).

**TABLE 3-2 AVIAN SPECIES OBSERVED DURING THE SITE SURVEYS OF THE PRATHER WATER DEVELOPMENT PROJECT.**

Killdeer	Verdin
Swainson's hawk	Bushtit
Harris' hawk	Bewick's wren
American kestrel	Black-tailed Gnatcatcher
Gambel's quail	Loggerhead shrike
Rock pigeon	Northern mockingbird
Mourning dove	Crissal thrasher
White-winged dove	Blue grosbeak
Greater roadrunner	Lark sparrow
Common nighthawk	Black-throated sparrow
Western kingbird	Western meadowlark
Ash-throated flycatcher	Great-tailed Grackle
Say's phoebe	Bullock's Oriole
Barn swallow	House Finch

### 3.4.2.3 Sensitive Species

The USFWS and NMDGF have been contacted for lists of sensitive species in Otero County (Appendix B). No formal surveys for particular species were conducted for this EA, although a general biological survey was performed in order to identify any potential needs for further study.

Each of the three alternative routes has seen significant disturbance from previous construction activities. With the exception of the loggerhead shrike, habitat conditions within each of the three alternative routes do not appear capable of supporting any state-listed sensitive species.

The loggerhead shrike (*Lanius ludovicianus*) occurs throughout New Mexico at lower and middle elevations and is considered a resident at HAFB. They prefer open country with short vegetation and scattered trees and shrubs, occurring in deserts and prairies in the West and pastures and fields in the East. Previous surveys indicate that loggerhead shrikes occur within the project area and this species was observed during the field surveys.

### 3.4.2.4 Federally-Listed Threatened, Endangered, Proposed Species, and Species of Concern

No evidence of federally-listed species or their habitats were noted within the project area during the field surveys.

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#### **3.4.2.5 State-Listed, Threatened, Endangered, Proposed Species, and Species of Concern**

No evidence of state-listed species or their habitats were noted within the project area during the field surveys.

### **3.5 CULTURAL RESOURCES**

#### **3.5.1 Definition of Resource**

Cultural resources are any prehistoric or historic district, site, or building, structure, or object considered important to a culture, subculture, or community for scientific, traditional, religious or other purposes. They include archeological resources (both prehistoric and historic), historic architectural resources, and traditional cultural properties. Only significant cultural resources (as defined in 36 CFR 60.4) are considered for potential adverse impacts from an action. Significant archeological and architectural resources are either eligible for listing or are listed on the National Register of Historic Places (NRHP). Significant traditional cultural properties are typically identified to federal agencies by Native American tribes or other groups, and may be eligible for the NRHP. HAFB does consult with the State Historic Preservation Officer and Tribal Historic Preservation Officers as appropriate to each project proposed by the base.

On 21 November 1999, the DoD promulgated its American Indian and Alaska Native Policy, which emphasizes the importance of respecting and consulting with tribal governments on a government-to-government basis. The Policy requires an assessment, through consultation, of the effect of proposed DoD actions that may have the potential to significantly affect protected tribal resources, tribal rights, and Indian lands before decisions are made by the services. HAFB conducts Native American consultation regarding each project to identify the tribe's concerns.

#### **3.5.2 Existing Conditions**

##### **3.5.2.1 Cultural Resource Background**

Archeological evidence reveals that humans have lived in the Tularosa Basin for more than 10,000 years. The initial cultural historical framework for the region was defined by Lehmer (1948) and has been refined by later investigators including MacNeish and Beckett (1987), Whalen (1981, 1994), and Miller (1989, 2001), among others. While some debate exists regarding the likely transition dates between periods and phases and also concerning some aspects of diagnostic material culture, the generally accepted regional chronology is summarized in Table 3-3.

##### ***PaleoIndian Period***

The earliest firmly documented occupation of the American continent is called the PaleoIndian Period. It is generally considered to date from about 10,000 to about 6,000 years BCE. The archeological evidence suggests that during this time the earliest Americans were highly nomadic hunters and gatherers. Populations were likely small and dispersed, exploiting a variety of wild food resources but largely focused towards now-extinct megafauna. Archeological sites are typically characterized by distinctive stone spear points, including the widespread Clovis and Folsom styles.



Although the PaleoIndian Period has been broadly documented across all of North and South America, archeological evidence is patchy for any location and relatively little is known about this earliest period in southern New Mexico. Isolated projectile points and other diagnostic tool types (Elyea 1988) have been found at widespread locations and a small handful of PaleoIndian sites have been excavated in the region (Carmichael 1983).

**TABLE 3-3 REGIONAL CHRONOLOGY**

<b>Period</b>	<b>Phase</b>	<b>Approximate Dates</b>
<b>PaleoIndian</b>		<b>10,000 - 6,000 BCE</b>
	<i>Clovis</i>	<i>10,000 – 9,000 BCE</i>
	<i>Folsom</i>	<i>9,000 – 8,500 BCE</i>
	<i>Plano</i>	<i>8,500 – 5,500 BCE</i>
<b>Archaic</b>		<b>6,000 BCE – AD 200</b>
	<i>Early</i>	<i>6,000 – 4,300 BCE</i>
	<i>Middle</i>	<i>4,300 – 900 BCE</i>
	<i>Late</i>	<i>900 BCE – AD 200</i>
<b>Formative</b>		<b>AD 200 - 1400</b>
	<i>Mesilla</i>	<i>AD 200 - 1100</i>
	<i>Doña Ana</i>	<i>AD 1100 -1200</i>
	<i>El Paso</i>	<i>AD 1200 -1400</i>
<b>Protohistoric</b>	-	<b>AD 1400 - 1659</b>
<b>Historic</b>	-	<b>AD 1659 - 1950</b>

Despite some evidence of a pre-Clovis occupation, the Clovis Period (*ca.* 10,000-9,000 BCE) is the first firmly documented human occupation in southern New Mexico. The Mockingbird Gap site north of HAFB is the best documented PaleoIndian site in the region. Excavated in the 1960s, this site has yielded the largest assemblage of Clovis period artifacts from southern New Mexico (Weber and Agogino 1997). Folsom Period materials have been reported from HAFB sites and abundant Folsom materials have been found at Lone Butte, 10 miles (16 km) south of HAFB (Amick 1994). Plano period (8,500-6,000 BCE) materials are not common in the area, but have been reported near Orogrande (Seaman et al 1988) and along the Otero Mesa escarpment (Graves et al 1997).

### ***Archaic Period***

Near the end of the PaleoIndian Period, global climate began to change slowly, becoming gradually warmer and dryer. In response, plant and animal populations also changed and the human populations began to exploit a wider variety of food resources. Large game was no longer the primary focus of subsistence. Changes in technology included a more diverse suite of lithic tools, increased use of grinding stones and the development of basketry. Pottery is absent. MacNeish and others (MacNeish et al 1993, MacNeish and Beckett 1987) have identified four phases within the Archaic: the Gardner Springs Phase (6,000 to 4300 B.C.), the Keystone Phase (4300 to 2600 B.C.), the Fresnal Phase (2600 to 900 B.C.), and the Hueco Phase (900 B.C to A.D. 200). Each of these phases is characterized by differences in lithic tool technology and resource exploitation strategies. By the end of the Archaic, many regions have evidence of a slow transition from mobile hunter-gatherers to semi-sedentary horticultural populations. Within the southern New Mexico region, Archaic sites are notably more common than PaleoIndian sites.

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### ***Formative Period***

During the late Archaic and early Formative Period, distinct regional adaptations began to develop. Horticulture became fully adopted and increasingly supplemented the gathering of wild plant resources. As a result, human populations became larger and more sedentary; settlements (sites) and house structures became larger and more permanent (Stuart and Gauthier 1981). In southern New Mexico, a defining characteristic of the Formative Period is the development of brownware ceramics, with black-on-white decorated pottery appearing after about A.D. 750. Stone tool technology became more diverse and specialized. Trading networks were well developed, as evidenced by Pacific and Gulf coast marine shell, Mexican copper bells, and point-sourced turquoises and obsidians.

Locally, three phases have been defined within the Formative Period: the Mesilla Phase (A.D. 200 to 1100), the Doña Ana Phase (A.D. 1100 to 1200), and the El Paso phase (A.D. 1200 to 1400/1450). Each phase is differentiated and recognized archeologically primarily on the basis of differences in ceramics. A variety of decorated ceramic wares have been well dated, including black-on-whites, black-on-reds, red-on-browns, terracottas, polychromes, and glazes (Stuart and Gauthier 1981).

### ***Protohistoric Period***

At the end of the Formative Period, many horticultural villages in the southern New Mexico region were abandoned in response to extended drought. During the early Protohistoric Period, the surviving local populations were sparse and returned to a semi-nomadic subsistence pattern (Upham 1984). Occupation of the Tularosa Basin during the Protohistoric Period is not well understood. Early Spanish explorers reported a variety of cultural groups in the area including the Suma, Manso, Jumano, and Apache (Sale et al 2002: 14). These groups followed a traditional foraging subsistence economy supplemented by limited horticulture and may have been descendants of Puebloan peoples.

It is not clear when the Mescalero Apache entered the region. Spanish records document nomads in the region by 1541 and some scholars have proposed an arrival as early as the 1300s, but this early date is disputed (Hawthorne 1994: 14). Regardless, the Apache were nomadic hunter-gatherers and seasonally ranged into west Texas and northern Mexico. The Apaches traded with pueblos and Spanish villages but also raided these settlements. Spanish incursions into the Tularosa region were effectively limited to occasional salt treks and punitive military expeditions.

### ***Historic Period***

In 1598, Juan de Onate claimed the Rio Grande and all its tributaries for Spain (Hammond and Rey 1966) and for the next two centuries the Spanish colonized and occupied the region. Until 1821, the Tularosa Basin was on the northern frontier of New Spain. When the Treaty of Guadalupe Hidalgo ended the Mexican War in 1848, New Mexico became part of the United States. There is little evidence, however, that Spanish people occupied the Tularosa Basin before it became part of the United States in 1848 (Hawthorne 1994: 15). The Apache effectively discouraged settlement of the Tularosa Basin, and colonists mostly stayed near the Rio Grande.



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After 1858, the United States Army actively pursued the Apache and by 1873 were successful in removing them to reservations. The first settlement in the area was in 1862 when several Hispanic families founded the towns of Tularosa and La Luz at the base of the Sacramento Mountains. The settlements were based on subsistence agriculture and sheep and cattle husbandry and survived periodic raids by the Apache (Hawthorne 1994: 16). Beginning in the 1870s, Anglo farmers and ranchers began settling in the area. By the 1880s, subsistence farming, and goat, sheep, and cattle ranching had become the center of the local economy and remained dominant for the next 50 years.

The El Paso and Northeastern Railroad came to the Tularosa Basin in 1898 and spurred rapid development of Alamogordo. Otero County was created the next year from portions of Doña Ana and Lincoln Counties. The U.S. Federal Government began affecting local affairs in 1907 with the creation of the Sacramento National Forest, later renamed the Lincoln National Forest, and in 1933, the National Park Service created White Sands National Monument (Hawthorne 1994: 17). In 1942, the U.S. Army established the Alamogordo Army Air Field and the Alamogordo Bombing and Gunnery Range, which later became HAFB and White Sands Missile Range. Since that time, the military presence has dominated the local economy.

### 3.5.2.2 Cultural Resource Inventory

The search of the ARMS database indicated that seven archeological sites are located within or adjacent to the project area. All of these sites are located along the Alternative C (Holloman Spur) route. An additional 56 sites were within a one mile (1.6 km) radius of the project area. Of the seven sites within or adjacent to the project area, four were determined by the New Mexico SHPO to be eligible for the NRHP (LA 103410, LA 119529, LA 119533, LA 119537), one site has been determined not eligible for the NRHP (LA 103411), and the eligibility of the two remaining two sites has not been determined (LA 112441, LA 155866).

From June 11 to June 13, 2008, archeologists from Ecological Communications Corporation (EComm) conducted a Class III inventory of the APE. The pedestrian archeological inventory survey encountered and documented eight sites, including five previously recorded sites and three newly discovered sites. Of the five previously recorded sites, three have previously been determined by the NM SHPO to be eligible for the NRHP, one site has been determined to be not eligible, and the fifth is here recommended as eligible. Of the three newly discovered sites, two are recommended as eligible for the NRHP and one is recommended as not eligible.

The two roadside memorials and the eight isolated occurrences are not eligible for the NRHP. However, avoidance is recommended for the two memorials, which should be temporarily removed and then replaced, and for the three brass survey markers (IO's # 3, 4, 7).

## 3.6 LAND USE

### 3.6.1 Definition of Resource

Land use is comprised of natural conditions or human-modified activities occurring at a particular location. Human-modified land-use categories include residential, commercial, industrial, transportation, communications and utilities, agricultural, institutional, recreational, and other

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developed use areas. Management plans and zoning subdivision regulations determine the type and extent of land use allowable in specific areas and are often intended to promote specific land uses for the benefit of the public health, welfare, and safety or other applicable laws.

### **3.6.2 Existing Conditions**

The proposed project area for the Prather water line lies within Otero County, New Mexico. Land within the project area is owned by the Union Pacific Railroad and/or managed by the New Mexico State Highway Department for both the Preferred Alternative and the U.S. Highway 70 Alternative. For the Railroad Alternative, HAFB either owns or hold easements for the project area. Adjacent lands to all project areas are state, federally or privately owned, and are used predominately for low density residential subdivisions, footslope and escarpment aesthetics preservation, grazing, and further east, forest management.

## **3.7 AESTHETICS AND NOISE**

### **3.7.1 Definition of Resource**

Aesthetic resources include perceptual attributes that contribute to the quality of the surrounding environment for certain human activities. This EA addresses visual resources and the noise environment.

Visual resources are the natural and manmade features that give a particular environment its aesthetic qualities. In undeveloped areas, landforms, water surfaces, and vegetation are the primary components that characterize a landscape. Manmade elements may also be visible. These may dominate the landscape or be relatively unnoticeable. Both manmade and natural features form the overall impression that an observer receives of an area or its landscape character, and contribute to overall quality of life. Attributes used to describe the visual resource value of an area include landscape character, perceived aesthetic value, and uniqueness.

Noise is considered to be unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. It may be intermittent or continuous, steady or impulsive, stationary or transient. There is wide diversity in responses to noise that not only vary according to the type of noise and the characteristics of the sound source, but also according to the sensitivity and expectations of the receptor, time of day, and distance between the noise source and receptor (e.g., a person or animal).

### **3.7.2 Existing Conditions**

The Prather water line improvement project area is located on the lowest footslopes and basin floor at the western base of the Sacramento Mountains. Various shrubs, grasses, and trees occupy the area. The highway right-of-way has been recently scraped with heavy equipment. In disturbed areas, plants that are present are mostly those common to disturbance. Properties beyond the highway ROW are primarily used for low-density residential and family business purposes. Transportation land uses are highly visible, as U.S. Highway 54 and a Union Pacific railway main line run adjacent to Highway 54.



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The BLM has designated the footslope and escarpment of the Sacramento Mountains as an Area of Critical Environmental Concern along the west slopes of the mountain range south of Alamogordo and east of Highway 54. The view from the Alamogordo vicinity is striking, view points along the escarpment overlook the Tularosa Valley, and these BLM lands are managed for visual resource values. Views both to and from the mountains are characterized by the grandeur of large panoramas and natural landscapes.

Noise levels in the vicinity of the proposed project originate primarily from highway and railroad sources. Residential, agricultural, and construction sources also contribute. There are several noise-sensitive locations along the highway ROW, including adjacent residential and business developments.

### **3.8 SOLID AND HAZARDOUS WASTE**

#### **3.8.1 Definition of Resource**

Solid waste resources include public agencies and private companies that provide licensed facilities for solid waste disposal. They are generally described in terms of their capacity and lifespan for receiving waste. In the context of an EA, the concern with hazardous waste is the potential for an encounter with previously dumped or stored hazardous waste within the project area that would need to be addressed as a result of the proposed project.

#### **3.8.2 Existing Conditions**

The Otero-Lincoln County Landfill is the New Mexico permitted waste facility designed to dispose of residential, commercial, and construction waste for Otero County and the city of Alamogordo. It is located at mile marker 43 on US Highway 54, approximately 24 miles south of Alamogordo. The landfill first opened in 1994 and has 92 acres permitted for receiving solid waste. Approximately 18-20 acres have been filled; the design anticipates a 50-year life span for operation. The landfill receives an average of 250 tons per day, approximately 72,000 tons per year. Tipping fees for construction waste for HAFB are \$22 per ton (Hammann 2004).

### **3.9 SOCIOECONOMICS**

#### **3.9.1 Definition of Resource**

Socioeconomics addresses population, employment, and earnings. The region of influence includes the county in which the proposed project would be located, Otero County, New Mexico.

#### **3.9.2 Existing Conditions**

##### **3.9.2.1 Population**

The 2002 population estimate for Otero County is 61,577, a reduction from the 2000 population of 62,298 and increase from the 1990 population of 51,928. The reduction represents the estimated loss

of approximately 1.2% from 2000 to 2002. The increased population from 1990 to 2000 represents a gain of approximately 20.0% (US Census 2008).

The 2002 population estimate for the state of New Mexico is 1,855,059, an increase from the 2000 population of 1,819,046. The state of New Mexico population in 1990 numbered approximately 1,514,609. This represents an increase of 20.1% between 1990 and 2000 and 2.0% between 2000 and 2002 (US Census 2008).

### 3.9.2.2 Employment and Earnings

There were 27,278 jobs in Otero County in 2000, a decrease of 570 jobs, or 2.0% over the 1995 job total. In 2000, more jobs were found in the private sector than in government or government enterprises. The largest sector was services, with 6,223 jobs (22.8%), followed by state and local government with 4,287 jobs (15.7%) and retail trade with 4,286 jobs (15.7%). Additional employment data over several years is presented in Table 3-4 (BEA 2004).

**TABLE 3-4 FIVE-YEAR EMPLOYMENT COMPARISON FOR OTERO COUNTY**

ITEM	1995	1998	2000
Total Full-Time and Part-Time Employment	27,848	26,870	27,278
Farm Employment	583	590	555
Non Farm Employment	27,265	26,280	26,723
Private Employment	15,736	15,299	16,321
Agricultural services, forestry, fishing, etc.	230	D	D
Mining	37	D	D
Construction	1,608	1,438	1,514
Manufacturing	914	841	872
Transportation and public utilities	1,115	1,125	1,166
Wholesale trade	327	334	332
Retail trade	4,225	4,068	4,286
Finance, insurance, and real estate	1,165	1,511	1,553
Services	6,115	5,689	6,223
Government and Government Enterprises	11,529	10,981	10,402
Federal, civilian	2,214	2,110	2,025
Military	5,485	4,637	4,090
State and local	3,830	4,234	4,287
State government	956	961	993
Local government	2,874	3,273	3,294

D – Not shown to avoid disclosure of confidential information, but the estimates for this item are included in total figures

## 3.10 ENVIRONMENTAL JUSTICE

### 3.10.1 Definition of Resource

The objectives of EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, include identification of disproportionately high and adverse health and environmental effects on minority populations and low-income populations that could be caused by a proposed federal action. Accompanying EO 12898 was a Presidential



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Transmittal Memorandum that referenced existing federal statutes and regulations, including NEPA, to be used in conjunction with the EO. The CEQ issued *Environmental Justice Guidance Under NEPA* in December 1997. Air Force guidance for implementation of the EO is provided in the Interim Guide Environmental Justice Analysis with the EIAP, dated November 1997. EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires each federal agency to identify and assess environmental health risks and safety risks that may disproportionately affect children. Agencies must ensure that their policies, programs, and activities address disproportionate environmental, health, or safety risks to children.

Minority populations include all persons identified by the US Census of Population and Housing to be of Hispanic origin, regardless of race, and all persons not of Hispanic origin other than White (i.e., non-Hispanic persons who are Black, American Indian, Eskimo or Aleut, Asian or Pacific Islander, or other race). Low-income populations include persons living below the poverty level as reported in the 2000 Census of Population and Housing. The percentage of low-income persons is calculated as a percentage of all persons for whom the Bureau of the Census determines income status, and is generally a slightly lower number than the total population.

### **3.10.2 Existing Conditions**

Based on the 2000 Census of Population and Housing for Otero County, New Mexico, 54.9% (33,806 persons) were minority, and 19.3% were below poverty level. Of the total population, 32.2% were of Hispanic origin, 3.9% were Black, 5.8% were American Indian or Alaska Natives, 1.2% were Asian, 0.1% were native Hawaiian or Other Pacific Islander, 3.6% were of two or more races, and 11.7% reported to be of some other race. Otero County's population in 2000 included 18,165 persons under the age of 18 (29.5%).

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## **4.0 ENVIRONMENTAL CONSEQUENCES**

Chapter 4.0 presents the environmental consequences of the Proposed Action at HAFB for each of the resource areas discussed in Chapter 3. An environmental consequence or impact is defined as a modification in the existing environment brought about by mission and support activities. Impacts can be beneficial or adverse, a primary result of an action (direct) or a secondary result (indirect), and can be permanent or long-lasting (long-term) or of short duration (short-term). Impacts can vary in degree from a slightly noticeable change to a total change in the environment.

Short-term impacts would occur during and immediately after the construction of the proposed project. For this project, short-term impacts are defined as those tied to the construction phase of the project, whereas long-term impacts are those following completion of the construction phase.

Significant impact criteria are presented for each affected resource. These criteria are based on existing regulatory standards, scientific and environmental knowledge, and/or best professional judgment. Potential impacts for this project were classified at one of three levels: significant, insignificant (or negligible), and no impact. Significant impacts (as defined in CEQ guidelines 40 CFR 1500-1508) are effects that are most substantial, and therefore, should receive the greatest attention in the decision-making process. Insignificant impacts would be those impacts that result in changes to the existing environment that could not be easily detected. No-impact actions would not alter the existing environment. In the following discussions, impacts are considered adverse unless identified as beneficial.

### **4.1 SOIL RESOURCES**

#### **4.1.1 Methodology**

The published soil surveys and the updated data tables of soil characteristics provided the descriptive information for the affected environment. The impact analysis is qualitative and is based on the assumption that soil disturbed during excavation is susceptible to wind erosion in this climate any time during the year and to water erosion during precipitation events. Temporary and permanent stabilization of disturbed soils would minimize offsite impacts on air and water resources.

#### **4.1.2 Potential Impacts**

##### **4.1.2.1 Alternative A: U.S. Highway 54**

Under Preferred Alternative, approximately 11 acres of ground would be disturbed as a result of clearing and grading activities in the area. All of the proposed alignment has been previously, and recently, disturbed by highway or railroad maintenance and CoA pipeline construction. Some erosion control features such as silt fencing, would be installed as needed within the project area, and additional measures may be used to minimize or mitigate wind and water erosion.



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Once minimization and mitigation procedures are followed, and design requirements that allow the spanning of the pipeline across any drainage are implemented, there would be no long-term significant impacts to soils caused by implementing the Proposed Action.

#### 4.1.2.2 Alternative B: U.S. Highway 70

Under Alternative B, approximately 19 acres of ground would be or has already been disturbed as a result of clearing and grading activity in the area. Some erosion control features, such as silt fencing, would be installed as needed within the project area, and additional measures may be used to minimize or mitigate wind and water erosion.

Once minimization and mitigation procedures are followed, and design requirements that allow the spanning of the pipeline across any drainage are implemented, there would be no long-term significant impacts to soils caused by implementing the Proposed Action.

#### 4.1.2.3 Alternative C: HAFB Railroad Spur

Under Alternative C, approximately 18 acres of ground would be or has already been disturbed as a result of clearing and grading equipment activity in the area. Some erosion control features, such as silt fencing, would be installed as needed within the project area, and additional measures may be used to minimize or mitigate wind and water erosion.

Once minimization and mitigation procedures are followed, and design requirements that allow the spanning of the pipeline across any drainage are implemented, there would be no long-term significant impacts to soils caused by implementing the Proposed Action.

#### 4.1.2.4 No Action Alternative

Because no additional soil disturbing activities would occur if the proposed project is not implemented, there would be no impacts under the No Action Alternative.

### 4.2 WATER RESOURCES

#### 4.2.1 Methodology

The potential for impacts to water resources due to the pipeline construction would result from surface disturbance during construction.

#### 4.2.2 Potential Impacts

##### 4.2.2.1 Alternative A: U.S. Highway 54

Approximately 15 drainage features traverse U.S. Highway 54 along the length of the project area. These ephemeral drainages are dry for most of the year, and only flow during heavy rain events.

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Design considerations for the pipeline have been made to avoid impacts to water flow and water quality in these drainages. Any impacts are anticipated to be minimal and temporary.

In compliance with State of New Mexico Ground and Surface Water Quality Protection Regulations (20 NMACE 7.4), any spills that occur during construction must be cleaned up and disposed of properly. The only potential for spills are those of fuel, lubricants, or other fluids from small portable fuel containers, gas-powered augers, generators, heavy equipment, and light-duty vehicles.

Under the dictated design and proper execution of erosion control techniques as would be outlined in the SWPPP, no significant short or long-term impacts to water resources would result from the Proposed Action. Additionally, there would be a beneficial impact on existing groundwater resources from increased protection and security of the new water line.

#### 4.2.2.2 Alternative B: U.S. Highway 70

No discernable drainage features were observed adjacent to or intersecting with U.S. Highway 70 during the field surveys of Alternative B. This is likely due to the fact that most of the route lies within the basin and/or parallels the natural drainage patterns in the area. There are no anticipated impacts to local drainage features associated with Alternative B.

In compliance with State of New Mexico Ground and Surface Water Quality Protection Regulations (20 NMACE 7.4), any spills that occur during construction must be cleaned up and disposed of properly. The only potential for spills are those of fuel, lubricants, or other fluids from small portable fuel containers, gas-powered augers, generators, heavy equipment, and light-duty vehicles.

Under the dictated design and proper execution of erosion control techniques, no significant short or long-term impacts to water resources would result from the Proposed Action. Additionally, there would be a beneficial impact on existing groundwater resources from increased protection and security of the new water line.

#### 4.2.2.3 Alternative C: HAFB Railroad Spur

Approximately nine natural drainages of any appreciable volume were noted during the field surveys. Several of these drainages serve as major channels carrying runoff from the mountains to the east down to the basin farther west. The natural course of many of these drainages was altered during railway construction and by the adjacent borrow ditch. Due to the lack of railroad maintenance, many of these drainages have re-established their pre-construction channels. All of these drainages are ephemeral and only flow during heavy precipitation events. Design considerations for the pipeline have been made to avoid impacts to water flow and water quality in these drainages. Any impacts are anticipated to be minimal and temporary.



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In compliance with State of New Mexico Ground and Surface Water Quality Protection Regulations (20 NMACE 7.4), any spills that occur during construction must be cleaned up and disposed of properly. The only potential for spills are those of fuel, lubricants, or other fluids from small portable fuel containers, gas-powered augers, generators, heavy equipment, and light-duty vehicles.

Under the dictated design and proper execution of erosion control technique, no significant short or long-term impacts to water resources would result from the Proposed Action. Additionally, there would be a beneficial impact on existing groundwater resources from increased protection and security of the new water line.

#### 4.2.2.4 No Action Alternative

No surface disturbance would occur as a result of the No Action alternative. Therefore, no impacts to surface water resources would occur. However, enhanced protection of the HAFB underground water supply would not be achieved; thus, the water supply would remain vulnerable and unreliable.

### 4.3 AIR QUALITY

#### 4.3.1 Methodology

The approach to air quality analysis was to estimate the increase in emission levels due to the Proposed Action. Air emissions resulting from the Proposed Action and alternatives were evaluated in accordance with federal, state, and local air pollution standards and regulations. The analysis included assessing potential impacts from ground disturbance activities along the pipeline, and emissions from construction equipment and workers commuting to the site. Air quality impacts from a proposed action would be significant if they:

- Increase ambient air pollution concentrations above any NAAQS.
- Contribute to an existing violation of any NAAQS.
- Interfere with or delay timely attainment of NAAQS.
- Impair visibility within any federally mandated PSD Class I area.

According to the New Mexico Air Quality Bureau, actions from the Proposed Action and alternatives would not be regulated under state or federal PSD regulations because they include only fugitive dust and mobile source emissions (NMAQB 2003).

According to USEPA's General Conformity Rule in 40 CFR Part 51, Subpart W, any proposed federal action that has the potential to cause violations, as described above, in a nonattainment or maintenance area must undergo a conformity analysis. A conformity analysis is not required for attainment areas. Because Otero County is designated as an attainment area for all criteria pollutants, a conformity determination would not be required.

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### **4.3.2 Potential Impacts**

Air quality impacts during construction activities related to the Proposed Action would occur from particulate emissions (i.e., fugitive dust) during ground clearing and grading activities and activities and vehicular emissions from construction equipment and workers' vehicles.

#### **4.3.2.1 Alternative A: U.S. Highway 54**

Air emissions from construction activities under the Preferred Alternative would be similar to those produced during typical light-construction activities. Light-duty and heavy-duty trucks and small generators would be used to haul away waste materials, deliver new pipeline materials to specific installation areas, power equipment such as augers, and move soil within the project area. Fugitive dust from equipment travel and activity would also be produced, from movement of small numbers of contractor vehicles during construction activity. Topography and meteorology of the area in which the project is located would not seriously restrict dispersion of the air pollutants.

Any emissions discharged during construction of the proposed project are not expected to cause an increase in local air pollutant concentrations beyond state and federal standards at any time. Only insignificant short-term impacts are expected from the construction phase of the proposed project. No long-term impacts to air resources would be anticipated.

#### **4.3.2.2 Alternative B: U.S. Highway 70**

Air emissions from construction activities under the U.S. Highway 70 Alternative would be similar to those produced during typical light-construction activities. Light-duty and heavy-duty trucks and small generators would be used to haul away waste materials, deliver new pipeline materials to specific installation areas, power equipment such as augers, and move soil within the project area. Fugitive dust from equipment travel and activity would also be produced, from movement of small numbers of contractor vehicles during construction activity. Topography and meteorology of the area in which the project is located would not seriously restrict dispersion of the air pollutants.

Any emissions discharged during construction of the proposed project are not expected to cause an increase in local air pollutant concentrations beyond state and federal standards at any time. Only insignificant short-term impacts are expected from the construction phase of the proposed project. No long-term impacts to air resources would be anticipated.

#### **4.3.2.3 Alternative C: HAFB Railroad Spur**

Air emissions from construction activities under the HAFB Railroad Spur Alternative would be similar to those produced during typical light-construction activities. Light-duty and heavy-duty trucks and small generators would be used to haul away waste materials, deliver new pipeline materials to specific installation areas, power equipment such as augers, and move soil within the project area. Fugitive dust from equipment travel and activity would also be produced, from movement of small numbers of contractor vehicles during construction activity. Topography and



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meteorology of the area in which the project is located would not seriously restrict dispersion of the air pollutants.

Any emissions discharged during construction of the proposed project are not expected to cause an increase in local air pollutant concentrations beyond state and federal standards at any time. Only insignificant short-term impacts are expected from the construction phase of the proposed project. No long-term impacts to air resources would be anticipated.

#### 4.3.2.4 No Action Alternative

Under the No Action Alternative, ground disturbance, non-road combustion, and vehicle commuting would continue unchanged. Air emissions would be identical to those under baseline conditions.

### 4.4 BIOLOGICAL RESOURCES

#### 4.4.1 Methodology

Impacts to biological resources would occur primarily from construction activities. Potential impacts to biological resources were assessed, including both short-term effects of construction activity and long-term effects of the pipeline on wildlife, vegetation, sensitive ecological features, and sensitive species.

#### 4.4.2 Potential Impacts

##### 4.4.2.1 Alternative A: U.S. Highway 54

##### *Upland Vegetation*

Approximately 11 acres of area proposed for this project have been previously cleared of vegetation multiple times. If the project area is to be re-bladed as part of the proposed project, an insignificant number of common shrubs and herbaceous vegetation typical of disturbed areas would be removed. Noxious weeds such as African rue and Russian knapweed occur in many places throughout the project vicinity and additional disturbance may encourage the spread of these and other exotic plant species into new areas.

##### *Drainages*

Approximately 15 natural drainages of any appreciable volume were noted during the field surveys. The natural course of many of these drainages has been altered by railway and highway construction. All of these natural drainages are ephemeral and only flow during heavy precipitation events. Vegetation along these drainages is similar to that of surrounding uplands, as moisture is retained here for extremely short periods of time. There are no wetlands affected by this project.

Under the preferred alternative, disturbance to the drainages is anticipated to be minimal and short in duration. Once construction of the pipeline is completed and the disturbed areas are graded to their pre-construction elevations, the natural flow of these drainages is anticipated to return to pre-construction levels.

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### ***Wildlife***

Although quantitative wildlife and vegetation surveys were not conducted in preparation of this EA, information regarding species composition within the project area and surrounding landscape were gathered from state and federal records and from qualitative observations made during the field surveys. Based on this information, the wildlife and vegetation of the project area were determined to be consistent with state and federal records and with information gathered during previous surveys of the area.

An insignificant amount of native vegetation would be impacted as a result of the proposed project, as most of the area is within the existing highway ROW and has previously been cleared and graded. There is no potential for impacts or impediments to wildlife movement throughout the area, beyond that which already exists, once the pipeline has been completed.

### ***Sensitive Species***

Both the Texas Horned Lizard and the Loggerhead Shrike are known to occur in the area. Sandy soils do occur within the project area, which is required by horned lizards for burrowing and hibernating. The defensive mechanism of remaining motionless and attempting to blend into the environment may cause this species to be susceptible to direct mortality and/or injury from movement of construction equipment. Hibernation burrows may also be affected during winter months as a result of ground-breaking activity associated with the proposed project. Loggerhead Shrikes are known to occur in the area, but impacts to populations are expected to be minimal, if occurring at all. Any individuals present in the proposed project area could temporarily relocate during construction and re-occupy habitat once work is complete.

Short-term impacts may occur to these and other wildlife resources. Both the New Mexico Department of Game and Fish and the U.S. Fish and Wildlife Service have concurred that the Proposed Action is not reasonably expected to cause a significant short or long term impact to biological resources.

#### **4.4.2.2 Alternative B: U.S. Highway 70**

### ***Upland Vegetation***

Approximately 19 acres of the proposed project area for this alternative have been previously cleared of most of the native vegetation. If the project area is to be re-bladed as part of the proposed project, an insignificant number of common shrubs and herbaceous vegetation typical of disturbed areas would be removed. Noxious weeds such as African rue and Russian knapweed occur in many places throughout the project vicinity and additional disturbance may encourage the spread of these and other exotic plant species into new areas.

### ***Drainages***

No natural drainages of any appreciable volume were noted during the field surveys. There are no wetlands affected by this project.

Under this proposed alternative, no disturbance to natural drainages is anticipated.



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## ***Wildlife***

Although quantitative wildlife and vegetation surveys were not conducted in preparation of this EA, information regarding species composition within the project area and surrounding landscape were gathered from state and federal records and from qualitative observations made during the field surveys. Based on this information, the wildlife and vegetation of the project area were determined to be consistent with state and federal records and with information gathered during previous surveys of the area.

An insignificant amount of native vegetation would be impacted as a result of the proposed project, as most of the area is within the existing highway ROW and has previously been cleared and graded. There are no anticipated impacts or impediments to wildlife movement throughout the area, beyond that which already exists, once the pipeline has been completed.

## ***Sensitive Species***

Both the Texas Horned Lizard and the Loggerhead Shrike are known to occur in the area. Sandy soils do occur within the project area, which is required by horned lizards for burrowing and hibernating. The defensive mechanism of remaining motionless and attempting to blend into the environment may cause this species to be susceptible to direct mortality and/or injury from movement of construction equipment. Hibernation burrows may also be affected during winter months as a result of ground-breaking activity associated with the proposed project. Loggerhead Shrikes are known to occur in the area, but impacts to populations are expected to be minimal, if occurring at all. Any individuals present in the proposed project area could temporarily relocate during construction and re-occupy habitat once work is complete.

Short-term impacts may occur to these and other wildlife resources. Both the New Mexico Department of Game and Fish and the U.S. Fish and Wildlife Service have concurred that the Proposed Action is not reasonably expected to cause a significant short or long term impact to biological resources.

### **4.4.2.3 Alternative C: HAFB Railroad Spur**

## ***Upland Vegetation***

Approximately 18 acres of the proposed alternative have been previously disturbed multiple times over the years as a result of railroad construction and ROW maintenance. A maintenance road runs along the south side of the railroad, and a borrow ditch occurs adjacent to the railroad in many places. This ditch serves to collect runoff in various isolated spots and, as a result, supports upland woody species such as salt cedar, mulberry (*Morus* spp.), elm (*Ulmus* spp.), and cottonwood (*Populus* spp.). These concentrations of woody vegetation are similar in function to riparian areas associated with perennial streams and serve as nesting structure, thermal and escape cover, and a food source for neighboring wildlife. As a result, wildlife diversity in these “woodlands” was observed to be greater than the surrounding areas. Subsequently, construction impacts to upland vegetation and wildlife will vary depending on the pipeline alignment.

If pipeline construction is restricted to the maintenance road or the railroad bed itself, the resulting impacts to these woodlands and other native vegetation will be insignificant. A pipeline alignment

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within the borrow ditches adjacent to the railroad bed would have a temporary impact on upland vegetation.

Noxious weeds such as African rue and Russian knapweed occur in many places throughout the project vicinity and additional disturbance may encourage the spread of these and other exotic plant species into new areas.

### ***Drainages***

Approximately 9 natural drainages of any appreciable volume were noted during the field surveys. Several of these drainages serve as major channels carrying runoff from the mountains to the east down to the basin farther west. The natural course of many of these drainages was altered during railway construction and by the ditch that runs parallel to the railroad. Due to the lack of railroad maintenance, many of these drainages have re-established their pre-construction channels. All of these natural drainages are ephemeral and only flow during heavy precipitation events. A few of the larger drainages support a slight increase in plant diversity, as compared to the surrounding uplands, due to the increase in available moisture. There are no wetlands associated with this alternative.

Under the proposed alternative, disturbance to the drainages is anticipated to be minimal and short in duration. Once construction of the pipeline is completed and the disturbed areas graded to their pre-construction elevations, the natural flow of these drainages is anticipated to return to pre-construction levels.

### ***Wildlife***

Although quantitative wildlife and vegetation surveys were not conducted in preparation of this EA, information regarding species composition within the project area and surrounding landscape were gathered from state and federal records and from qualitative observations made during the field surveys. Based on this information, the wildlife and vegetation of the project area were determined to be consistent with state and federal records and with information gathered during previous surveys of the area.

Numerous species of birds including nesting Bullock's oriole and nesting Swainson's hawk were observed during the field surveys of this alternative route. Several other species of wildlife, or evidence of their presence, were also observed including coyote, desert cottontail, black-tailed jackrabbit, and Botta's pocket gopher. In general, the wildlife diversity of this area appeared to be greater than the other alternative routes though no empirical data were collected to substantiate these observations. It is the opinion of EComm that the number of wildlife species observed during the field surveys of the project area were a result of the previously described woodland patches associated with the borrow ditches.

Pipeline construction and maintenance impacts to wildlife will vary depending upon the alignment of the pipeline. If pipeline construction is restricted to the maintenance road or the railroad bed itself, the resulting impacts to wildlife will be insignificant. A pipeline alignment immediately north of the railroad or immediately south of the maintenance road would result in significant impacts to the existing woody vegetation and a resulting negative impact on local wildlife populations. Potential impacts to wildlife from the removal of woody vegetation in these woodland areas include



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a decrease in an already limited amount of nesting structures, thermal and escape cover, and natural food sources to name a few.

### ***Sensitive Species***

Both the Texas Horned Lizard and the Loggerhead Shrike are known to occur in the area. Sandy soils do occur within the project area, which is required by horned lizards for burrowing and hibernating. The defensive mechanism of remaining motionless and attempting to blend into the environment may cause this species to be susceptible to direct mortality and/or injury from movement of construction equipment. Hibernation burrows may also be affected during winter months as a result of ground-breaking activity associated with the proposed project. Loggerhead Shrikes are known to occur in the area, but impacts to populations are expected to be minimal, if occurring at all. Any individuals present in the proposed project area could temporarily relocate during construction and re-occupy habitat once work is complete.

Short-term impacts may occur to these and other wildlife resources. Both the New Mexico Department of Game and Fish and the U.S. Fish and Wildlife Service have concurred that the Proposed Action is not reasonably expected to cause a significant short or long term impact to biological resources.

#### **4.4.2.4 No Action Alternative**

Under the No Action Alternative, no changes would be made to the existing water line. Biological conditions within the project area would remain identical to those of the existing conditions, as described in Section 3.4.2.

### **4.5 CULTURAL RESOURCES**

#### **4.5.1 Methodology**

Impacts to Cultural Resources from the proposed project and alternatives are assessed by 1) identifying the nature and location of elements of the alternatives; 2) comparing those locations with identified cultural resource locations, areas considered sensitive, and surveyed locations; 3) assessing the known or potential significance of cultural resources; and 4) determining the extent, intensity, and context of the effects. In consultation with the State Historic Preservation Officer (SHPO), a determination is made as to whether the effects would be adverse, and where appropriate, measures are identified to avoid, reduce, or otherwise mitigate those effects.

#### **4.5.2 Potential Impacts**

##### **4.5.2.1 Alternative A: U.S. Highway 54**

For Alternative A, a portion of the proposed APE with a length of 243 meters was found to be profoundly disturbed due to construction of the U.S. Highway 70/Tularosa Bypass interchange. This area was judgmentally spot-checked for cultural resources and, as a result, a culvert on the Union Pacific Railroad was identified as a historic property.

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A pedestrian survey of the remaining portion of Alternative A was surveyed for cultural resources and an additional eight structural features of historic age associated with the Union Pacific Railroad were observed, including five timber stringer bridges and four concrete box culverts.

As a result of the survey of Alternative A, the active Union Pacific Railroad was recognized as an historic property and assigned the Museum of New Mexico Laboratory of Anthropology number LA 160270. The site has been recommended as eligible for the NRHP and, therefore, in need of mitigative consideration. Since the proposed construction of the water pipeline will involve notification and consultation with Union Pacific officials, procedures to ensure the security of railroad structures will presumably be observed. If due caution is exercised, the proposed water line construction would have no direct or indirect effects on the remaining historical integrity of the Union Pacific Railroad.

#### 4.5.2.2 Alternative B: U.S. Highway 70

For Alternative B, the northern portion of the proposed APE with a length of 2.24 km meters was found to be profoundly disturbed due to construction of U.S. Highway 70 and adjacent commercial development. This area was judgmentally spot-checked for cultural resources and none were identified.

A pedestrian survey of the remaining portion of Alternative B was conducted and one site of historic age (LA 160108 (ECP-2)) was recorded. LA 160108 (ECP-2) is a corral with associated features associated with post WW II Era/Cold War Era, Anglo-European ranching activities. The site does not retain sufficient integrity or possess any other characteristics that would make it eligible for the NRHP and therefore does not require any mitigative action. However, if this alternative is chosen, the site will not be impacted if construction activities are confined to the U.S. Highway 70 right-of-way.

#### 4.5.2.3 Alternative C: HAFB Railroad Spur

The search of the ARMS database indicated that seven archeological sites are located within or adjacent to the project area. All of these sites are located along the Alternative C (Holloman Spur) route. Of the seven sites within or adjacent to the project area, four were determined by the New Mexico SHPO to be eligible for the NRHP (LA 103410, LA 119529, LA 119533, LA 119537), one site has been determined not eligible for the NRHP (LA 103411), and the eligibility of the two remaining two sites has not been determined (LA 112441, LA 155866).

Of these seven previously recorded sites, the pedestrian survey found evidence of five sites (LA 103410, LA 103411, LA 119529, LA 119537, LA 155866); the remaining two previously recorded sites (LA 112441 and LA 119533) were found not to extend into the surveyed APE.

LA 103410 is located on the south side of the present survey area and does not enter the proposed APE for Alternative C of the Prather water line reconstruction project. If this alternative is chosen, the site will not be impacted if construction activities are confined to the Holloman Spur right-of-way.



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LA 103411 is located on the north side of the present survey area and, though it was observed in the area surveyed, the site does not enter the proposed APE for Alternative C of the Prather water line reconstruction project. If this alternative is chosen, the site will not be impacted if construction activities are confined to the Holloman Spur right-of-way. Moreover, the site is not a significant historical property.

LA 119529 is located on the south side of the present survey area and does not enter the proposed APE for Alternative C of the Prather water line reconstruction project. If this alternative is chosen, the site will not be impacted if construction activities are confined to the Holloman Spur right-of-way.

The residential portion of LA 119537 is located on the south side of the present survey area, but the site extends across the APE for Alternative C of the Prather water line reconstruction project. The site has already been affected by construction of the now-abandoned Holloman Railroad spur and associated dirt roads. If this alternative is chosen, the site will be subjected to additional impacts from construction activities.

Site LA 155866 consists of an abandoned railroad line known as the Holloman Air Force Base Spur. The Holloman Spur connected Holloman AFB to the Southern Pacific (now Union Pacific) railroad line. One of the proposed construction alternatives (Alternative C) for the Prather water line reconstruction project lies along the south side of the railway for a distance of 7.87 km (4.9 mi.). The Holloman Spur retains a high degree of integrity of place and setting due to the lack of nearby commercial or residential development. As a result of the observations made during the current survey, the site has been well documented, retains considerable integrity and is eligible for nomination to the NRHP. If this alternative is chosen, the site will be subjected to additional impacts from construction activities.

A newly recorded site (LA 160107 (ECP-1)) was found located within the Alternative C alignment. LA 160107 is a scatter of prehistoric lithic artifacts of unknown cultural and temporal affiliations in a 30 by 25 meter (715 sq m) area. No features or diagnostic artifacts were observed, and the single concentration of artifacts does not appear to indicate the presence of a discrete activity area. The data potential of the site lies mostly in its location, size, and relationship with other sites in the area; this potential has been realized by the present recordation. As a result, LA 160107 is recommended as not eligible for nomination to the NRHP. If this alternative is chosen, the site may be subjected to impacts from construction activities.

#### 4.5.2.4 No Action Alternative

No additional impacts to cultural resources would result from this alternative.

### 4.6 LAND USE

#### 4.6.1 Methodology

Land use impacts can result if an action displaces an existing use or reduces the suitability of an area for its current, designated, or formally planned use. In addition, a proposed activity may be incompatible with local plans and regulations that provide for orderly development to protect the

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general welfare of the public, or conflict with management objectives of a federal or state agency of an affected area. Land use development would need to comply with federal and state environmental laws and regulations.

#### **4.6.2 Potential Impacts**

##### **4.6.2.1 Alternative A: U.S. Highway 54**

Under the Preferred Alternative, approximately 20,000 feet of pipeline would be laid adjacent to U.S. Highway 54. Land acquisition (easements) would be required from the State Highway Department, and/or the Union Pacific Railroad.

The contractor shall contact the appropriate project personnel to assure that affects to utility services, underground pipes, etc are avoided. No impacts to surrounding land activities would be anticipated. Work would not affect railroad, highway, or other transportation within the area.

Only short-term insignificant impacts would be expected during the construction phase of the Proposed Action. No change in land use would occur, and no long-term impacts are anticipated.

##### **4.6.2.2 Alternative B: U.S. Highway 70**

Under this alternative approximately 35,000 feet of pipeline would be laid adjacent to U.S. Highway 70. Land acquisition would be required for construction of the pipeline. Easements would be required from the State Highway Department for any highway crossings.

The contractor shall contact the appropriate project personnel to assure that affects to utility services, underground pipes, etc are avoided. No impacts to surrounding land activities would be anticipated. Work would not affect railroad, highway, or other transportation within the area.

Only short-term insignificant impacts would be expected during the construction phase of the Proposed Action. No change in land use would occur, and no long-term impacts are anticipated.

##### **4.6.2.3 Alternative C: HAFB Railroad Spur**

No impacts or changes to current land use in the area, other than the addition of the buried pipeline and the existing transportation corridor, would result from this Alternative as the existing easements should prove adequate for the proposed action.

The contractor shall contact the appropriate project personnel to assure that affects to utility services, underground pipes, etc are avoided. No impacts to surrounding land activities would be anticipated. Work would not affect railroad, highway, or other transportation within the area.

Only short-term insignificant impacts would be expected during the construction phase of the Proposed Action. No change in land use would occur, and no long-term impacts are anticipated.



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#### 4.6.2.4 No Action Alternative

No impacts or changes to current land use in the area would result from the No Action Alternative.

### 4.7 AESTHETICS AND NOISE

#### 4.7.1 Methodology

There are no federal laws specifically protecting visual resources, but federal and state land custodians and local governments are given the power to adopt regulations and procedures to protect resources within their jurisdiction. Local agencies or land developers may enforce standards of high visual value, low tolerance for visible modification, or other designated visual resources classifications. The degree to which an action would modify the existing surroundings is used to assess the level of impact.

Noise impacts are considered qualitatively. The type of noise, noise sources, and duration are described generally. The degree of impact from noise is characterized generally based on the sensitivity of affected areas to noise, and relative changes to the ambient noise environment.

#### 4.7.2 Potential Impacts

##### 4.7.2.1 Alternative A: U.S. Highway 54

Construction activities for the pipeline replacement would take place in an area that has previously been cleared and the highway has been previously constructed. The new pipeline would not obstruct views of the Sacramento Mountains, nor would it significantly change the overall landscape and views from the mountain range. Local residents would notice the equipment and personnel movement during construction, and a material distinction after construction is complete, although changes would not be significant. Only short-term and low level impacts would be expected during the construction phase of the project, and no significant long-term impacts are anticipated.

Noise would be generated by construction activities, although typical equipment to be used would not produce greater noise volumes than the residential construction activities common to the area. Noise would be generated intermittently from the work site during normal working hours until completion. After completion, noise levels would be lower in the project area than the adjacent highway. Therefore, only insignificant impacts are anticipated during the construction phase, and no long-term impacts are expected.

##### 4.7.2.2 Alternative B: U.S. Highway 70

Construction activities for the pipeline replacement would take place in an area that has previously been cleared and the highway has been previously constructed. The new pipeline would not obstruct views of the Sacramento Mountains, nor would it significantly change the overall landscape and views from the mountain range. Local residents would notice the equipment and personnel

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movement during construction, and a material distinction after construction is complete, although changes would not be significant. Only short-term and low level impacts would be expected during the construction phase of the project, and no significant long-term impacts are anticipated.

Noise would be generated by construction activities, although typical equipment to be used would not produce greater noise volumes than the residential construction activities common to the area. Noise would be generated intermittently from the work site during normal working hours until completion. After completion, noise levels would be lower in the project area than the adjacent highway. Therefore, only insignificant impacts are anticipated during the construction phase, and no long-term impacts are expected.

#### 4.7.2.3 Alternative C: HAFB Railroad Spur

Construction activities for the pipeline replacement would take place in an area that has previously been cleared and the highway has been previously constructed. The new pipeline would not obstruct views of the Sacramento Mountains, nor would it significantly change the overall landscape and views from the mountain range. Local residents would notice the equipment and personnel movement during construction, and a material distinction after construction is complete, although changes would not be significant. Only short-term and low level impacts would be expected during the construction phase of the project, and no significant long-term impacts are anticipated.

Noise would be generated by construction activities, although typical equipment to be used would not produce greater noise volumes than the residential construction activities common to the area. Noise would be generated intermittently from the work site during normal working hours until completion. After completion, noise levels would be lower or the same as in the project area than the adjacent neighborhoods. Therefore, only insignificant impacts are anticipated during the construction phase, and no long-term impacts are expected.

#### 4.7.2.4 No Action Alternative

There would be no change in visual resources or ambient noise levels from current conditions under the No Action Alternative.

### 4.8 SOLID AND HAZARDOUS WASTE

#### 4.8.1 Methodology

Impacts on solid waste facilities and surrounding areas caused by waste generation and hazardous waste movement are assessed by examining current conditions and anticipating the effect of the proposed project. Reduction in life span of solid waste facilities that would require near-term expansion of capacity (within five years) would potentially be considered a significant impact. In this case, the feasibility of expanding or permitting new areas for receiving solid waste would be examined. Any generation of hazardous waste from the proposed project, or the handling of existing hazardous waste in the project area, would be examined by type of waste, amount of waste, and available options for disposal.



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## **4.8.2 Potential Impacts**

### **4.8.2.1 Alternative A: U.S. Highway 54**

No hazardous waste would be generated by the proposed pipeline installation. No short- or long-term impacts are expected from the Proposed Action.

### **4.8.2.2 Alternative B: U.S. Highway 70**

No hazardous waste would be generated by the proposed pipeline installation. No short- or long-term impacts are expected from the Proposed Action.

### **4.8.2.3 Alternative C: HAFB Railroad Spur**

No hazardous waste would be generated by the proposed pipeline installation. No short- or long-term impacts are expected from the Proposed Action.

### **4.8.2.4 No Action Alternative**

No changes would be made under the No Action Alternative.

## **4.9 SOCIOECONOMICS**

### **4.9.1 Methodology**

Baseline conditions for population, employment, and earnings were analyzed for Otero County, providing statewide comparisons when information was available. Historical data were also collected to be used as a comparison tool against current figures. Data were collected from the U.S. Census Bureau, as well as the Bureau of Economic Analysis.

### **4.9.2 Potential Impacts**

#### **4.9.2.1 Alternative A: U.S. Highway 54**

##### ***Population***

The proposed project would not be expected to create a long-term change in population since jobs associated with pipeline replacement are expected to be similar to current levels. In addition, construction workers would either reside in the local area or, if hired from outside the local area, would be anticipated to relocate on a temporary basis for the duration of their work.

##### ***Employment and Earnings***

Construction expenditures for the pipeline project are projected to approximately \$1.8 million over a 90-day period in the Winter of 2009 – Spring 2010. Otero County, by comparison, produced \$44 million of earnings in the construction sector in 1998.

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No significant short or long term impacts are expected to socioeconomic resources from the implementation of the Proposed Action.

#### 4.9.2.2 Alternative B: U.S. Highway 70

##### ***Population***

The proposed project would not be expected to create a long-term change in population since jobs associated with pipeline replacement are expected to be similar to current levels. In addition, construction workers would either reside in the local area or, if hired from outside the local area, would be anticipated to relocate on a temporary basis for the duration of their work.

##### ***Employment and Earnings***

Construction expenditures for the pipeline project are projected to approximately \$3.3 million over a 90-day period in the Winter of 2009 – Spring 2010. Otero County, by comparison, produced \$44 million of earnings in the construction sector in 1998.

#### 4.9.2.3 Alternative C: HAFB Railroad Spur

##### ***Population***

The proposed project would not be expected to create a long-term change in population since jobs associated with pipeline replacement are expected to be similar to current levels. In addition, construction workers would either reside in the local area or, if hired from outside the local area, would be anticipated to relocate on a temporary basis for the duration of their work.

##### ***Employment and Earnings***

Construction expenditures for the pipeline project are projected to approximately \$3.8 million over a 90-day period in the Winter of 2009 – Spring 2010. Otero County, by comparison, produced \$44 million of earnings in the construction sector in 1998.

#### 4.9.2.4 No Action Alternative

No changes would be made to baseline conditions.

### 4.10 ENVIRONMENTAL JUSTICE

#### **4.10.1 Methodology**

Data on minority and low-income populations for Otero County were extracted from data compiled by the 2000 U.S. Census. Total, minority, and low-income populations were described for the county. Other resource impacts identified in the EA were considered to determine the potential for high and adverse health and environmental impacts to human populations. If such impacts were identified, an analysis of the potential for disproportionately high and adverse impacts to minority and low-income populations would be conducted, comparing the demographics of the affected area to those of the entire county.



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#### **4.10.2 Potential Impacts**

##### **4.10.2.1 Alternative A: U.S. Highway 54**

Activities at the proposed project area and surrounding properties would continue undisrupted by this project. No long-term substantial impacts would be expected to occur. No impacts to minority or low-income populations are anticipated.

##### **4.10.2.2 Alternative B: U.S. Highway 70**

Activities at the proposed project area and surrounding properties would continue undisrupted by this project. No long-term substantial impacts would be expected to occur. No impacts to minority or low-income populations are anticipated.

##### **4.10.2.3 Alternative C: HAFB Railroad Spur**

Activities at the proposed project area and surrounding properties would continue undisrupted by this project. No long-term substantial impacts would be expected to occur. No impacts to minority or low-income populations are anticipated.

##### **4.10.2.4 No Action Alternative**

No changes would be made under the No Action Alternative.

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## 5.0 CUMULATIVE IMPACTS

Cumulative impacts to environmental resources result from incremental effects of a proposed project, when combined with other past, present, and reasonably foreseeable future projects in the area. Cumulative impacts can result from minor, but collectively substantial actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the near future is required. Any of these other actions that may occur in the area would require NEPA analysis (specific to those proposals) prior to implementation.

Although there are currently no projects planned in the foreseeable future in the proposed project areas, other improvement projects may be proposed for other areas of the BWWSA, as funding may become available. Such projects would be from one to twelve miles distant from HAFB, not contiguous, and considerably smaller in scope of area affected. As there is no effective means of predicting when, or if, any such projects will come about, analysis is not included in this current document, although any such analysis would be required.

On a longer timescale, each of the alternatives are set within existing transportation corridors. They parallel existing highways, pipelines, or a railroad. Past construction in each area has created the existing conditions. The currently proposed construction would not constitute any significant additional impacts.

Further, because these corridors exist, it is reasonable to expect future proposals for water, power, or communication lines parallel with these existing features. This is consistent with land use planning for the region, which is intended to minimize the spread of such impacts.



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City of Alamogordo:

City Manager Pat McCourt

City Engineer Dean Hunt

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## 8.0 ACRONYMS

AFI	Air Force Instruction
AFIOH	Air Force Institute for Operational Health
AoP	City of Alamogordo
APE	Area of Potential Effect
ARMS	Archeological Resource Management System
ATFP	Anti-Terrorism/Force Protection
BEA	Bureau of Economic Analysis
BLM	Bureau of Land Management
BMP	Best Management Practice
BWWSA	Boles Wells Water System Annex
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon monoxide
CoA	City of Alamogordo
DoD	Department of Defense
EA	Environmental Assessment
EComm	Ecological Communications Corporation
EIAP	Environmental Impact Analysis Process
EO	Executive Order
ESA	Endangered Species Act
H <sub>2</sub> S	Hydrogen sulfide
HAFB	Holloman Air Force Base
IO	Isolated occurrence
mgd	million gallons per day
µg/m <sup>3</sup>	micrograms per cubic meter
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NMAAQs	New Mexico Ambient Air Quality Standards
NMAQB	New Mexico Air Quality Bureau
NMDGF	New Mexico Department of Game and Fish
NMISC	New Mexico Interstate Stream Commission
NO <sub>2</sub>	Nitrogen dioxide
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
O <sub>3</sub>	Ozone
Pb	Lead
PM <sub>2.5</sub>	Respirable particulate matter less than 2.5 micrometers in diameter
PM <sub>10</sub>	Respirable particulate matter less than 10 micrometers in diameter
ppm	Parts per million
ROW	Right of Way
SDWA	Safe Drinking Water Act

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SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO <sub>2</sub>	Sulfur dioxide
SWPPP	Storm Water Pollution Prevention Plan
U.S.	United States
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USC	United States Code
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service



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## **APPENDICES**



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## **APPENDIX A**

### **SITE PHOTOS**



Photo 1. Photo of the pump house which serves as the common origin for all three alternative pipeline routes (Photo aspect 280°).



Photo 2. View of conditions at the southern terminus of the U.S. Highway 54 alternative with a typical drainage feature for the area in the foreground (10°).





Photo 3. View of conditions along the U.S. Highway 54 alternative (10°).

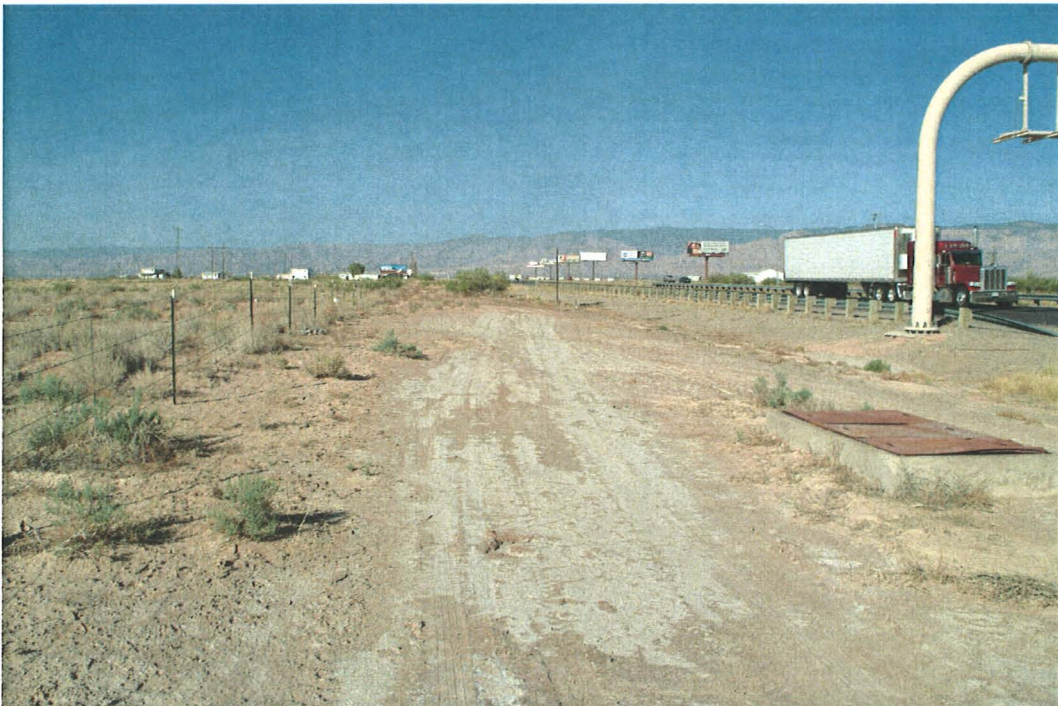


Photo 4. View of conditions at the southwest terminus of the U.S. Highway 70 alternative (70°).





Photo 5. View of conditions along the U.S. Highway 70 alternative (50°).



Photo 6. Typical business building found along the U.S. Highway 70 alternative (50°).





Photo 7. View of conditions along the HAFB Railroad Spur alternative (270°).



Photo 8. Another view of conditions along the HAFB Railroad Spur alternative (90°).





Photo 9. An upstream view of a typical ephemeral drainage feature found throughout the project area (250°).



Photo 10. A downstream view of the same drainage feature in the previous photo (70°).



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## **APPENDIX B**

### **THREATENED, ENDANGERED, AND RARE SPECIES INFORMATION**

## NMDGF THREATENED, ENDANGERED, AND SENSITIVE (INFORMAL) SPECIES OF OTERO COUNTY.



**Biota Information System**  
Of *New Mexico*



Providing New Mexico and its wildlife  
Year-round **E**xcellent **S**ervice

Common Name	Scientific Name	County	Status
Chub, Rio Grande	Gila pandora	Otero	State NM: Sensitive taxa (informal)
Pupfish, White Sands	Cyprinodon tularosa	Otero	State NM: Threatened
Trout, Cutthroat, Rio Grande	Oncorhynchus clarki virginalis (NM)	Otero	State NM: Sensitive taxa (informal)
Salamander, Sacramento Mtn.	Aneides hardii	Otero	State NM: Threatened
Lizard, Earless, Bleached	Holbrookia maculata ruthveni (NM)	Otero	State NM: Sensitive taxa (informal)
Lizard, Fence, Southwestern	Sceloporus cowlesi	Otero	State NM: Sensitive taxa (informal)
Rattlesnake, Rock, Mottled	Crotalus lepidus lepidus (NM)	Otero	State NM: Threatened
Whiptail, White, Little	Aspidoscelis gypsi	Otero	State NM: Sensitive taxa (informal)
Black-Hawk, Common	Buteogallus anthracinus anthracinus (NM)	Otero	State NM: Threatened
Bunting, Varied	Passerina versicolor versicolor (NM);dickeyae (NM)	Otero	State NM: Threatened



<b>Common Name</b>	<b>Scientific Name</b>	<b>County</b>	<b>Status</b>
Cormorant, Neotropic	Phalacrocorax brasilianus	Otero	State NM: Threatened
Cuckoo, Yellow- billed	Coccyzus americanus occidentalis (eastern pop)	Otero	State NM: Sensitive taxa (informal)
Eagle, Bald	Haliaeetus leucocephalus alascanus (NM)	Otero	State NM: Threatened
Falcon, Aplomado	Falco femoralis septentrionalis (NM)	Otero	State NM: Endangered
Falcon, Peregrine	Falco peregrinus anatum	Otero	State NM: Threatened
Falcon, Peregrine, Arctic	Falco peregrinus tundrius	Otero	State NM: Threatened
Flycatcher, Willow, SW.	Empidonax traillii extimus	Otero	State NM: Endangered
Goshawk, Northern	Accipiter gentilis atricapillus (NM,AZ);apache (NM,AZ)	Otero	State NM: Sensitive taxa (informal)
Ground-dove, Common	Columbina passerina pallescens (NM)	Otero	State NM: Endangered
Hummingbird, Broad-billed	Cynanthus latirostris magicus (NM)	Otero	State NM: Threatened
Hummingbird, White-eared	Hylocharis leucotis borealis (NM)	Otero	State NM: Threatened
Owl, Spotted, Mexican	Strix occidentalis lucida (NM,AZ)	Otero	State NM: Sensitive taxa (informal)

Common Name	Scientific Name	County	Status
Pelican, Brown	Pelecanus occidentalis carolinensis (NM)	Otero	State NM: Endangered
Plover, Mountain	Charadrius montanus	Otero	State NM: Sensitive taxa (informal)
Shrike, Loggerhead	Lanius ludovicianus excubitorides (NM);sonoriensis (NM);gambeli (NM)	Otero	State NM: Sensitive taxa (informal)
Sparrow, Baird's	Ammodramus bairdii	Otero	State NM: Threatened
Swift, Black	Cypseloides niger borealis (NM)	Otero	State NM: Sensitive taxa (informal)
Tern, Least	Sterna antillarum athalassos (NM)	Otero	State NM: Endangered
Trogon, Elegant	Trogon elegans canescens (NM)	Otero	State NM: Endangered
Vireo, Bell's	Vireo bellii arizonae (NM,AZ);medius (NM)	Otero	State NM: Threatened
Vireo, Gray	Vireo vicinior	Otero	State NM: Threatened
Bat, Big-eared, Townsend's, Pale	Corynorhinus townsendii pallescens (NM,AZ)	Otero	State NM: Sensitive taxa (informal)
Bat, Myotis, Brn., Little, Occult	Myotis lucifugus occultus (NM,AZ)	Otero	State NM: Sensitive taxa (informal)
Bat, Myotis, Cave	Myotis velifer incautus (NM);brevis (NM,AZ)	Otero	State NM: Sensitive taxa (informal)



<b>Common Name</b>	<b>Scientific Name</b>	<b>County</b>	<b>Status</b>
Bat, Free-tailed, Big	Nyctinomops macrotis	Otero	State NM: Sensitive taxa (informal)
Bat, Myotis, Fringed	Myotis thysanodes thysanodes (NM,AZ)	Otero	State NM: Sensitive taxa (informal)
Bat, Myotis, Long- legged	Myotis volans interior (NM,AZ)	Otero	State NM: Sensitive taxa (informal)
Bat, Myotis, Small- footed, W.	Myotis ciliolabrum melanorhinus (NM,AZ)	Otero	State NM: Sensitive taxa (informal)
Bat, Spotted	Euderma maculatum	Otero	State NM: Threatened
Chipmunk, Gray- footed	Neotamias canipes sacramentoensis (NM)	Otero	State NM: Sensitive taxa (informal)
Chipmunk, Least, Penasco	Neotamias minimus atristriatus (NM)	Otero	State NM: Endangered
Prairie Dog, Black- tailed	Cynomys ludovicianus ludovicianus (NM)	Otero	State NM: Sensitive taxa (informal)
Prairie Dog, Black- tailed, AZ	Cynomys ludovicianus arizonensis (NM,AZ)	Otero	State NM: Sensitive taxa (informal)
Fox, Red	Vulpes vulpes fulva (NM);macroua (NM)	Otero	State NM: Sensitive taxa (informal)
Gopher, Pocket, Desert	Geomys arenarius brevirostris (NM)	Otero	State NM: Sensitive taxa (informal)
Mouse, Jumping, Meadow	Zapus hudsonius luteus (NM,AZ)	Otero	State NM: Endangered

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Common Name	Scientific Name	County	Status
Mouse, Pocket, Rock	Chaetodipus intermedius ater (NM)	Otero	State NM: Sensitive taxa (informal)
Ringtail	Bassariscus astutus arizonensis (NM,AZ); flavus (NM); yumanensis (AZ); nevadensis (AZ)	Otero	State NM: Sensitive taxa (informal)
Skunk, Hog-nosed, Common	Conepatus leuconotus mearnsi (NM); venaticus (NM,AZ)	Otero	State NM: Sensitive taxa (informal)
Skunk, Spotted, Western	Spilogale gracilis	Otero	State NM: Sensitive taxa (informal)
Squirrel, Red	Tamiasciurus hudsonicus lychnuchus (NM)	Otero	State NM: Sensitive taxa (informal)
Mountainsnail, Socorro	Oreohelix neomexicana	Otero	State NM: Sensitive taxa (informal)

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## USFWS THREATENED AND ENDANGERED SPECIES OF OTERO COUNTY, NM.



New Mexico Ecological Services Field Office

### LISTED AND SENSITIVE SPECIES IN OTERO COUNTY

Total number of species: 39



Common Name	Scientific Name	Group	Status
Rio Grande cutthroat trout	<i>Oncorhynchus clarki virginalis</i>	Fish	Candidate
New Mexican meadow jumping mouse	<i>Zapus hudsonius luteus</i>	Mammal	Candidate
Least Tern (Interior Population)	<i>Sterna antillarum</i>	Bird	Endangered
Northern aplomado falcon	<i>Falco femoralis septentrionalis</i>	Bird	Endangered
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Bird	Endangered
Black-footed ferret <sup>2</sup>	<i>Mustela nigripes</i>	Mammal	Endangered
Kuenzler's hedgehog cactus	<i>Echinocereus fendleri</i> var. <i>kuenzleri</i> Escobaria (= <i>Coryphantha</i> )	Plant	Endangered
Sacramento prickly poppy	<i>Argemone pleiacantha</i> spp. <i>pinnatisecta</i>	Plant	Endangered
Todsen's pennyroyal Designated Critical Habitat	<i>Hedeoma todsenii</i>	Plant	Endangered
Mexican spotted owl Designated Critical Habitat	<i>Strix occidentalis lucida</i>	Bird	Threatened
Sacramento Mountains thistle	<i>Cirsium vinaceum</i>	Plant	Threatened

Common Name	Scientific Name	Group	Status
Sacramento mountain salamander	<i>Aneides hardii</i>	Amphibian	Species of Concern
Sacramento Mountains blue butterfly	<i>Icaricia icariodes</i>	Arthropod - Invertebrate	Species of Concern
Sacramento Mountains checkerspot butterfly	<i>Euphydryas anicia cloudcrofti</i>	Arthropod - Invertebrate	Species of Concern
Sacramento Mountains silverspot butterfly	<i>Speyeria atlantis capitanensis</i>	Arthropod - Invertebrate	Species of Concern
American peregrine falcon	<i>Falco peregrinus anatum</i>	Bird	Species of Concern
Arctic peregrine falcon	<i>Falco peregrinus tundrius</i>	Bird	Species of Concern
Baird's sparrow	<i>Ammodramus bairdii</i>	Bird	Species of Concern
Bell's vireo	<i>Vireo bellii</i>	Bird	Species of Concern
Black tern	<i>Chlidonias niger</i>	Bird	Species of Concern
Mountain plover	<i>Charadrius montanus</i>	Bird	Species of Concern
Northern goshawk	<i>Accipiter gentilis</i>	Bird	Species of Concern
Western burrowing owl	<i>Athene cunicularia hypugaea</i>	Bird	Species of Concern
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Bird	Species of Concern
White Sands pupfish	<i>Cyprinodon tularosa</i>	Fish	Species of Concern
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>	Mammal	Species of Concern
Desert pocket gopher	<i>Geomys arenarius</i>	Mammal	Species of Concern
Guadalupe southern pocket gopher	<i>Thomomys umbrinus guadalupensis</i>	Mammal	Species of Concern
Penasco (Least) chipmunk	<i>Tamias minimus atristriatus</i>	Mammal	Species of Concern
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	Mammal	Species of Concern
White Sands woodrat	<i>Neotoma micropus leucophaea</i>	Mammal	Species of Concern
Alamo beard tongue	<i>Penstemon alamosensis</i>	Plant	Species of Concern
Desert night-blooming cereus	<i>Cereus greggii</i> var. <i>greggii</i>	Plant	Species of Concern
Goodding's onion	<i>Allium gooddingii</i>	Plant	Species of Concern
Guadalupe rabbitbrush	<i>Chrysothamnus nauseosus</i> var. <i>texensis</i>	Plant	Species of Concern
Gypsum scalebroom	<i>Lepidospartum burgessii</i>	Plant	Species of Concern
Sierra Blanca cliff daisy	<i>Chaetopappa elegans</i>	Plant	Species of Concern
Villard's pincushion cactus	<i>Escobaria villardii</i>	Plant	Species of Concern
Wright's marsh thistle	<i>Cirsium wrightii</i>	Plant	Species of Concern



<b>Endangered</b>	Any species which is in danger of extinction throughout all or a significant portion of its range.	<b>Threatened</b>	Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
<b>Candidate</b>	Candidate Species (taxa for which the Service has sufficient information to propose that they be added to list of endangered and threatened species, but the listing action has been precluded by other higher priority listing activities).	<b>Proposed</b>	Any species of fish, wildlife or plant that is proposed in the Federal Register to be listed under section 4 of the Act. This could be either proposed for endangered or threatened status.
<b>Species of Concern</b>	Taxa for which further biological research and field study are needed to resolve their conservation status OR are considered sensitive, rare, or declining on lists maintained by Natural Heritage Programs, State wildlife agencies, other Federal agencies, or professional/academic scientific societies. Species of Concern are included for planning purposes only.		

*Foot Notes:*

- |   |                                     |
|---|-------------------------------------|
| <b>D</b> Designated Critical Habitat.   | <b>P</b> Proposed Critical Habitat. |
| <b>1</b> Introduced population.   | <b>3</b> Extirpated in this county. |
| <b>2</b> Survey should be conducted if project involves impacts to prairie dog towns or complexes of 200-acres or more for the Gunnison's prairie dog ( <i>Cynomys gunnisoni</i> ) and/or 80-acres or more for any subspecies of Black-tailed prairie dog ( <i>Cynomys ludovicianus</i> ). A complex consists of two or more neighboring prairie dog towns within 4.3 miles (7 kilometers) of each other. |                                     |

7/31/2008

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## **APPENDIX C**

### **PUBLIC NOTICE**



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## **Notice of Availability**

Interested parties are hereby notified that the United States Air Force, Holloman Air Force Base, NM has completed an Environmental Assessment (EA) that resulted in a Finding of No Significant Impact (FONSI) for the Prather Water Line Improvement Project.

The EA documents the proposed actions for the Prather Water Line Improvement Project, alternatives to the proposed action, the affected environment, and impacts to the affected environment.

Information regarding the project may be found in the EA and FONSI available for review at the Alamogordo Public Library, Alamogordo, New Mexico. Copies may also be obtained by writing to the address below.

Comments regarding the EA and FONSI may be directed to:

49 FW/PA  
490 First Street, Suite 2800  
Holloman AFB NM 88330-8277

This notice is being issued to interested parties, in accordance with the National Environmental Policy Act (Public Law [PL] 91-190, 42 United States Code 4321 et seq.), as amended in 1975 by PL 94-52 and PL 94-83.

**162 Words**

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## **APPENDIX D**

### **MEETING ROSTERS**



# SIGN IN SHEET

## WINDO EA Public Information Meeting

March 31, 2005

NAME	ADDRESS	TELEPHONE NUMBER
Dean & Maday McBride	2251 Carson Ave [REDACTED]	505-961-2-6167 [REDACTED]
Pat McCount	376 [REDACTED] [REDACTED]	[REDACTED]
John Brown	[REDACTED]	[REDACTED]
Charles Hester	1403 Timber [REDACTED]	[REDACTED]
Justin Lucas	[REDACTED]	[REDACTED]
John R. [REDACTED]	1019 Carson Rd [REDACTED]	[REDACTED]
Jessie L. Budon	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
Eric Beckstrom	[REDACTED]	[REDACTED]
DAVID GOTTULE	[REDACTED]	[REDACTED]
Larry Monger	[REDACTED]	[REDACTED]
John Holbrook	[REDACTED]	[REDACTED]
Debbie Hartell	[REDACTED]	[REDACTED]
Billy Claxton	[REDACTED]	[REDACTED]

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PRATHER PIPELINE ENVIRONMENTAL ASSESSMENT

RESTART MEETING 16 MAY 2008

Andrew "JR" GOMOLAK

Roger Berry

Michael Lago

NICK TRIZWELTZ

Jill Madden

Mike Zanelli

Rob Sexton

Taffy A. Miller

Mark Urey

Timmie Worley

Tony Ortiz

Mike O'Sullivan

L.K. CROSTHWAITE

David Griffin